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57TH CONGRESS, } HOUSE OF REPRESENTATIVES. } DOCUMENT
2d Session. } } No. 7.

REPORT

OF THE

COMMISSIONERS OF THE DISTRICT OF COLUMBIA

FOR THE

YEAR ENDED JUNE 30, 1902.

VOL. II.

[ENGINEER DEPARTMENT.]

WASHINGTON:
GOVERNMENT PRINTING OFFICE.

1902.



EXTRACT FROM THE REPORT OF THE COMMISSIONERS OF THE DISTRICT OF COLUMBIA FOR THE YEAR ENDED JUNE 30, 1902.

OFFICE OF THE COMMISSIONERS
OF THE DISTRICT OF COLUMBIA,
Washington, November 10, 1902.

The PRESIDENT:

The Commissioners of the District of Columbia herewith submit for the information of Congress, as required by law, their annual report of the official doings of the government of said District for the fiscal year which ended June 30, 1902.

* * * * *

OPERATIONS OF THE ENGINEER DEPARTMENT.

During the fiscal year the engineer department was in charge of Capt. Lansing H. Beach, Corps of Engineers, U. S. Army, Engineer Commissioner, until November 1, 1901. The military assistants to the Engineer Commissioner during the year were Capt. H. C. Newcomer and Capt. Chester Harding, Corps of Engineers, U. S. Army.

THE UNION STATION.

It is earnestly hoped that final action will be taken this year on the bill for the union station and abolishing grade crossings within the city. Every public event that attracts an unusual crowd to the city manifests the need of better terminal facilities. Under present conditions it is necessary to lay temporary tracks and suspend the handling of freight whenever a large gathering takes place, and as Washington has many events of this kind, the need is accentuated from year to year. With the railroad companies and the Commissioners in accord upon all the material features of the improvement, it is hoped that the project will soon receive Congressional approval. A union station seems to be practically assured, the only question being that of location.

At the last session of Congress a bill was introduced in the Senate providing for the location of a union station at Delaware and Massachusetts avenues, fronting upon the latter. The bill was referred to the Commissioners for report and was recommended favorably by them, and later it passed the Senate. The bill then went to the House of Representatives and was referred to the Committee on the District of Columbia, which requested a statement from the Engineer Commissioner upon the alternative locations of the site as above, and one at C street and North Capitol street as provided by existing legislation for the station of the Baltimore and Ohio Railroad. On June 23, in response to this request, the Acting Engineer Commissioner made this report, giving the relative advantages and disadvantages of the

two sites. Congress adjourned a few days after the report was submitted, and no action was taken on the bill.

The advantages of the C street site may be briefly repeated: The engineering situation is better, this site being on the side of a hill so that there would not have to be a large fill, as in the other case; the foundations of the buildings around the station would be better and would possibly attract, at the outset, a better class of buildings; the crossing of the streets to the north of the station, with the exception of Massachusetts avenue, would be more satisfactory, as a greater track elevation would be obtained, causing less change in existing grades and permitting stone arches instead of steel girders to be used; the C street site is also nearer the lower part of Pennsylvania avenue and to the main street-car lines as they exist at present; it would cost less and cause less damage to the adjacent property, although no plan has yet been made for treating the surroundings on as large a scale as has been done in the case of the Massachusetts avenue site, and the probable necessity for buying two large squares, estimated to cost \$850,000, immediately in front would bring the cost to a figure much nearer that of the Massachusetts avenue site.

The advantages of the Massachusetts-avenue location are: It would be, in the opinion of the architects of the station, much more satisfactory with reference to the Capitol and lend itself better to the necessary development of the surroundings; Delaware avenue between Massachusetts avenue and the Capitol grounds would be saved as a boulevard; Massachusetts avenue, instead of being covered by a viaduct 800 feet long, would be open, although H street, now an important thoroughfare, would have a similar viaduct instead; the city must grow to the north, and therefore this would be nearer the center of population; the facilities for handling crowds would be much better, as in the C-street site, being situated on the side of a hill, the approaches would practically be along one or two streets, while at Massachusetts avenue there would be several wide avenues, the street cars could, of course, easily change their routes so as to accommodate themselves to any location.

As the station is to be a permanent and monumental structure, it is considered by the Commissioners that the location best adapted for the future should be chosen, even though it may involve a greater initial expense and greater temporary damage to property. The cost of the Massachusetts avenue site is stated in their report to the Senate Committee on the District of Columbia, and they are of the opinion that it is the better site.

STREET RAILWAYS.

The Metropolitan Railway Company was authorized by Congress to extend its line from Eighteenth street and Columbia road east on Columbia road to old Sixteenth street, thence north on old Sixteenth street to Park street, the work to be done in connection with the widening of Columbia road and old Sixteenth street. This work has been commenced. Some of the construction material has been delivered upon the ground, and it is expected that the extension will be completed within a few months.

Another extension authorized was that of the Anacostia and Potomac River Railway Company on Eleventh street from Florida avenue to Lydecker avenue. The act provides that this extension shall be made

within two years after a permit therefor is issued by the Commissioners. The Commissioners are ready to issue the permit whenever satisfactory plans are filed, but so far none have been presented. The office has been informed that the company desires to wait until the street is improved before undertaking the work of construction. In their report upon the bill for this extension the Commissioners recommended that the company be required to complete the work within two years from the date of the passage of the act; this requirement, however, was not retained in the bill as it passed.

During the year the office had removed from the streets some $4\frac{1}{2}$ miles of abandoned street-railway tracks, the cost of which work—\$31,483.95—was paid by the railways. There are several streets yet occupied by these abandoned tracks, which will be removed, it is expected, in the near future.

TREE SERVICE.

Twenty-six hundred new trees were planted in the streets during the year. The varieties were elms, ginkgoes, lindens, Norway, silver, and sugar maples, and pin and willow-leaf oaks. Six hundred and forty-four trees had to be removed for various causes. There are now 84,487 trees upon the streets of the city. The land purchased for the municipal-hospital site—about 30 acres on Thirteenth street extended and Richmond street—has been utilized as an additional nursery. Seedlings to the number of 22,000 have been planted here and are doing well.

The appropriation for tree service this year is \$25,000. All labor and material are paid for from this sum. This is the same amount as was appropriated last year, although there are about 2,000 additional trees to be cared for. The amount is much too small to afford proper care and attention. Many of the trees are not yet provided with wire netting and numbers of them are killed by horses gnawing the bark. The trimming of the trees should be regular and systematic, both for their health and beauty and for the comfort of the passers-by and inhabitants of adjacent houses. The soil should be continually loosened around the roots. It takes years to grow a tree, while a short lack of proper attention may cause its death. Forty thousand dollars a year at least is needed to care for the 84,000 trees now on the streets and to permit needed extensions of the tree service. The policy of the office is to plant trees as far as sidewalks and curb are laid, but it is not always possible to do this. It is earnestly hoped that Congress will increase the appropriation to the amount asked for.

Criticisms are made from time to time as to the manner in which trees have been trimmed or removed. In this connection it should be remembered that the city tree is beset by conditions very different from those surrounding one growing in a state of nature. The root space is cramped, the surface nearly impervious, and the roots imperfectly watered. Thus it often happens that the roots are insufficient to sustain the overhead growth, which begins to fail, and the only remedy is to severely prune the tree, reducing it to a size which the roots can support. In the last few years a number of trees have had to be removed to make way for street and sidewalk work. Some varieties have been found by experience to be unsuited for street purposes, and these are eliminated as rapidly as possible. The North

Carolina poplar is in this class; its roots grow near the surface, where they interfere with sidewalks and curbing, and it is easily wrecked by storms. We are endeavoring to guard the trees as carefully as possible, and none is removed without good cause. Since May last a record has been kept of each tree removed. This record shows the location, variety, and nature of surroundings of the tree and the cause of its removal. It is believed that in the course of a few years this record will furnish statistics of value.

Details of the work are given in the report of Mr. Trueman Lanham, superintendent of parking, which will be found on page 93.

BUILDINGS AND BUILDING INSPECTION.

The past year was marked by increased activity in building. The estimated value of new buildings for which permits were issued is \$8,310,240. This is a gain of more than \$2,000,000 over the preceding year. About two-thirds of this increase is in dwelling houses. As an indication of the extent to which the city is yearly pushing out beyond its original boundary it may be stated that the estimated value of new buildings erected in the county during the year is about \$2,500,000.

This growth in business has placed a heavy burden upon the office of the building inspector. Congress has added to the force of this office from year to year, but the additions have not kept pace with the increase in business. There is just complaint on the part of builders of time wasted in getting building permits. Additional force is requested.

The building inspector calls attention to the desirability of inspecting scaffoldings and derricks for the better protection of the life and limb of workmen. There have been frequent accidents due to lack of precautions in this regard, and it has been impossible for the office to give the matter the attention it deserves. With the amount of building in progress all over the District, the inspectors have only been able to give a few minutes daily to each building. An increase in the number of inspectors is requested.

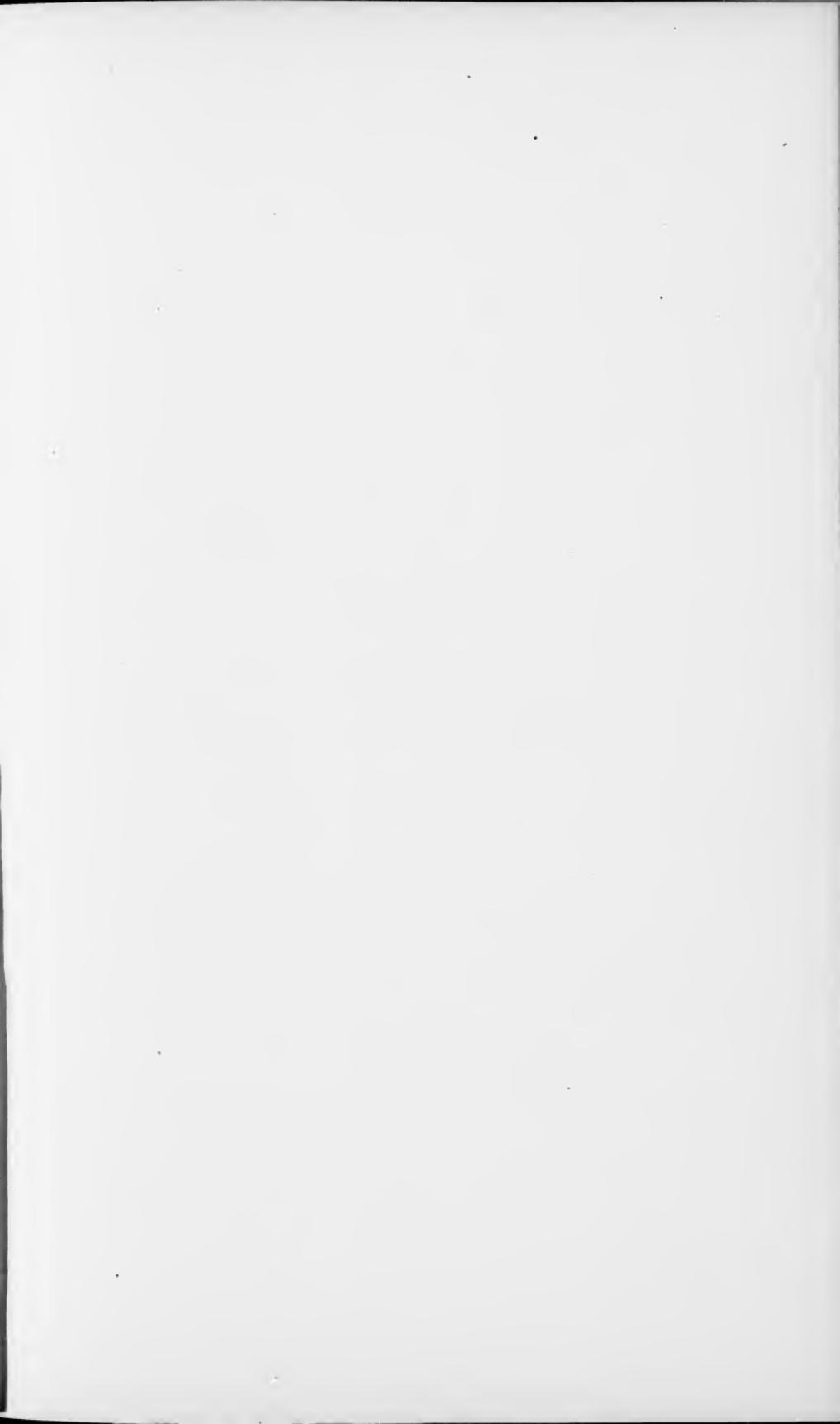
During the year there were completed 12 school buildings, the Tenth precinct station house, Brookland engine house, 2 stables for the fire department, the receiving ward for the Washington Asylum, and the rear wing of the new workhouse. This work was done by contract, under the supervision of the building inspector's office.

Details of work during the year are given in the report of Mr. Snowden Ashford, inspector of buildings, which will be found on page 149.

SURVEYOR'S OFFICE.

The work of this office has increased about one-third over what it was during the preceding year. This is largely due to activity in the real estate and building business. The new building regulations, which went into effect last March, require that the walls of all new buildings shall be located on the ground by the surveyor. This has added to the duties of the office, and while it may incur a small delay and expense to the builder at the beginning of the work, it is believed to be very desirable, insuring, as it does, against future litigations on account of encroachments on adjoining property.

Several years ago the Commissioners adopted a rule requiring that





each new house should be located on a separate lot, and that building site should be subdivided accordingly. The object of this was to do away, as far as possible, with the necessity of describing property in the records by metes and bounds. For instance, there are cases all over the city where parts of original lots are held by different owners. These parts are described on the records by metes and bounds—a very awkward method and one in which the likelihood of errors is great. When the owner of one of these parcels applied for a permit to build he was required to have it listed as a separate lot, and a separate number given it before the permit would be issued. By this method it was hoped eventually to get all of these parcels listed under numbers of their own. The matter was taken into court, however, where it was held that the Commissioners could not compel an owner to subdivide if he did not wish to do so. The regulations were then amended, and now permits are issued upon the presentation either of a subdivision or of a plat of survey showing the location on the lot of existing and proposed buildings. As a rule, subdivisions are presented instead of plats of survey, and the designation of these separate parcels by lot and square numbers is being accomplished gradually. There is more or less objection to this requirement on the part of real estate men and builders, caused mainly by delays in having the necessary papers prepared—due to the fact that the office is at times unable, with its present force, to keep up with current business.

The appropriation for the support of the surveyor's office during the present year is \$17,800. The fees collected by the surveyor during the year just ended amounted to \$8,652.40. These fees were deposited as are other revenues of the District of Columbia.

Details of the work of the office during the year are shown in the report of Mr. H. B. Looker, surveyor, for which see page 90.

BRIDGES.

The office again calls attention to the serious condition of the Anacostia bridge. This bridge was built in 1875 for ordinary traffic. In recent years an electric railway has been installed upon it, carrying heavy cars, a load it was never designed to carry. The roadway is entirely taken up by car tracks and the draw arrangement is out of date. The bridge is unsightly, too narrow, and structurally unfit for the heavy traffic imposed upon it. This bridge is more used than any other of its size in the District of Columbia. An estimate for rebuilding is submitted.

The K street bridge over Rock Creek is also structurally weak and should be rebuilt as soon as possible. The estimated cost of this work is \$20,000.

The principal bridge constructed during the year was the boulder-faced bridge across Rock Creek in Rock Creek Park. Its total cost was \$17,635.77.

The masonry arch of the Massachusetts avenue bridge across Rock Creek was completed during the year, at a total cost of \$132,005.82.

All of the foundations for the Connecticut avenue bridge over Rock Creek, from piers 2 to 9, were built up to about 3 feet of the springing line of the arches.

During the year the old footbridge over Eighth street, which for many years connected the General Post-Office building with the rented quarters opposite, was removed, the need for it no longer existing.

VIII OPERATIONS OF THE ENGINEER DEPARTMENT, D. C.

Details of the work of the bridge department are given in the report of Mr. W. J. Douglas, engineer of bridges, for which see page 88.

ROCK CREEK PARK.

The principal work of the year in Rock Creek Park consisted in the erection of two masonry bridges—one at the mouth of Broad Branch and the other at the site of the old Argyle dam—and the grading of about 3 miles of park roads. Some damage was done by high water during the year. The dam at Pierce mill was swept away and the dirt road above the military road was washed out in a number of places. The report of Mr. W. P. Richards, assistant engineer (which will be found on page 172), gives a detailed account of work done during the year, and other data of interest.

It is regretted that no appropriation is available for any new work in the park this year. The sum allotted—\$2,500—is barely sufficient to keep existing roads and bridges in repair. It is hoped that funds will be provided at the coming session of Congress for necessary work in the park, as large parts of the park are unimproved and consequently unused, and existing roads need thorough repairs, widening in dangerous places, and bank protection.

STREET AND ALLEY PAVEMENTS.

The materials used for street pavements during the year were sheet asphalt, asphalt block, and macadam; 50,218 square yards of sheet asphalt, 29,859 square yards of asphalt block, and 40,276 square yards of macadam were laid. The amount of street grading was 207,130 cubic yards. The prices paid for sheet asphalt and asphalt block were \$1.72 and \$1.77 per square yard, respectively. For the coming year the prices will be \$1.56 to \$1.64 per square yard for sheet asphalt, according to the character of the base; for asphalt block, \$1.66 per square yard on gravel base, and \$2 on natural cement base.

The materials used for paving alleys were vitrified block and asphalt block; 9,969 square yards of the former and 18,095 of the latter were laid.

In the specifications for asphalt paving during the current year a requirement has been included that "the asphalt cement must be, either naturally or through artificial treatment, of such character as to be unaffected by the action of water when tested as follows: The asphalt cement shall be tested by coating it on a piece of glass and immersing this coated glass in distilled water at a temperature between 70° and 90° F. The surface of the asphalt cement must remain bright and show no corrosion or discoloration after immersion for a period of seven days."

One of the most troublesome defects in asphalt pavements is the rolling or buckling of the surface, which is noticeable upon nearly all the streets in the District of Columbia where this pavement exists; and where asphalt is so generally used as it is here the question becomes a serious one, since it has a direct bearing upon the life, usefulness, and cost of repairs of the pavement. From investigation and observation, both in this city and elsewhere, it is believed that this defect is due, in part at least, to the presence in the asphalt of soluble salts, which absorb moisture, loosen the grains of sand in the asphalt mix-

ture, and cause a disintegration which softens the pavement, so that it works into folds and ridges. Within the District of Columbia these defects are characteristic, as far as can be ascertained, of asphalt mixtures containing soluble salts, while they do not appear to any appreciable extent in other kinds which do not contain these salts.

During the present year it is, therefore, the intention to use an asphalt which is, either naturally or artificially, reasonably free from soluble salts, in the expectation of considerable improvement in the pavement. That this will prevent the action of water on the pavement is not as yet an established fact acknowledged by all, but the indications in the District of Columbia are that way, and its great importance warrants any trial that may lead to better results.

SIDEWALKS.

Last year the prices for cement sidewalks were 89 cents and \$1.07 per square yard, the latter price prevailing upon streets in the county not provided with roadway pavements. The prices this year are \$1.04 and \$1.11 per square yard, respectively. This increase is due to the increased cost of materials, particularly of cement. During the year 73,313 square yards of cement sidewalk were laid, an increase of more than 6,000 yards over the preceding year. There is very little demand now for brick sidewalks; less than 2,000 square yards were laid during the year.

The District appropriation act approved July 1, 1902, contains a provision that "hereafter no property except that of the United States or the District of Columbia shall be exempt from assessments for improvements." Under the old law the courts held that churches, hospitals, and other institutions exempt from taxation could not be assessed for special improvements. This prevented the construction of sidewalks on streets abutting such institutions unless they deposited half the cost of the work in advance, no matter how much the walk might be needed. By the above provision, however, this embarrassment is removed, and the department can construct walks in these cases as in the case of any other private property. An increase in the appropriation is requested. The amount up to date has been barely sufficient to keep pace with new house construction. In the heart of the city there are many old brick pavements which are much used by the public and need replacing. Where this has been requested by property owners it has usually been done. In many cases, however, the property owners object, as half the cost is assessed against the property. It is, however, a necessary public improvement gradually being accomplished, but which has been hampered by lack of funds.

STREET EXTENSIONS.

The most important street extension of the year was that of Sixteenth street. On March 13, 1899, an act (subsequently amended) was approved authorizing the extension of Sixteenth street from Morris street to the District line, a distance of about 5 miles. About 50 acres (more than 75 per cent of the land within the street north of Piney Branch road) were dedicated for the extension of the street. Proceedings were then undertaken for the condemnation of the remainder of the land necessary. The jury began its labors Decem-

ber 4, 1900, and rendered its verdict May 27, 1901. The verdict awarded damages to the extent of \$729,952.29. Benefits were assessed against abutting property to the amount of \$108,834.75.

The verdict was finally confirmed by the supreme court of the District of Columbia April 19, 1902. Shortly afterwards the auditor began the payment of the awards. This work necessarily has proceeded slowly, as the title to each parcel of land has to be examined before payment can be made.

During the latter part of September houses within the lines of Sixteenth street, as extended, were advertised for removal, and their removal was begun during the first week in October, it being the intention of the office to have obstructions removed from the line of the street by the first of the coming year. An item of \$50,000 has been included in the current estimates for the improvement of the street from Morris street to Piney Branch road.

Data as to the other street extensions made during the year are given in the report of Mr. W. P. Richards, assistant engineer, for which see page 171.

SEWAGE DISPOSAL.

The execution of the sewage-disposal project has been pushed as rapidly as available appropriations would permit. The system consists of a number of trunk sewers which will intercept and convey to the pumping station at the southern extremity of New Jersey avenue the entire sewage of the city and the storm water of the lower portion of the Tiber Valley. The sewage will be pumped from the pumping station across the Anacostia River in an inverted siphon, thence carried along the left bank of the Potomac River to near the United States naval magazine, where it will be discharged into the river. The pumping station also includes a plan for elevating the storm water of the low area of the city adjacent to Pennsylvania avenue during freshet stages of the Potomac, discharging the same into the Anacostia River.

Sewers have been completed to the amount of	\$648, 303.54
Appropriations have been made and work will be completed during the current fiscal year to the extent of	633, 000.00
The amount required to complete work in progress, for which additional appropriations will have to be made, is	1, 071, 675.00
The amount required for work for which no appropriations have heretofore been made is	1, 096, 422.00
Total estimated cost of sewage-disposal project	3, 449, 400.54
Total appropriations to date	1, 281, 303.54
Appropriations required to complete	2, 168, 097.00

Contracts have been let for the pumping station and for the principal remaining trunk sewers and work upon them is in progress, for which there has been appropriated about \$1,000,000. All of the principal work which will take any length of time to complete has been commenced. The outlet sewer and siphon have not yet been started, as it is considered more important to finish the other part of the system first. The construction of the outlet and siphon will not take over a year, and temporarily the sewage can be pumped into the river at the pumping station.

During the year 17,342 linear feet of main sewers and 52,520 linear feet of pipe sewers were constructed.

Details of the work of the sewer division are given in the report of Mr. D. E. McComb, superintendent of sewers, which will be found on page 113.

WATER SERVICE.

About two years ago a rigid inspection of water fixtures throughout the city was instituted. In a number of cases it was found that premises had been improperly rated, which ratings were corrected. In 1901 the revenues increased about \$20,000 over the previous year, and in 1902 there was a further increase of \$26,000. In each case the bulk of the increase was in water rents. The revenues of the water department for the year amounted to \$395,394.02. The number of premises now supplied with Potomac water is 47,801, 1,326 having been added during the year. There are 1,493 meters in use, an increase of 253 over last year.

Ten miles of new water mains were laid during the year, and 83 new fire hydrants erected.

A parcel of land 100 feet square near the Reno reservoir was purchased for the use of the water department. It is proposed to erect a water tower on this site to supply premises above the 350-foot contour.

At the Brightwood reservoir two granite gate houses were completed and an iron railing erected around the basins.

Work upon the Trumbull street pumping station has progressed satisfactorily, although there has been a slight delay due to difficulty in securing materials.

Attention is again invited to the project for the installation of a high-pressure fire service in the business section of the city. This service would add materially to the fire protection of this important part of the city, and work upon it should be started as soon as funds can be provided for the purpose. This project is described in detail in the report of Mr. W. A. McFarland, superintendent of the water department, which will be found on page 99.

TESTS OF MATERIALS.

It is believed that facilities should be provided for testing all important materials used in public works of the District. Asphalts and cements are now rigidly tested, with beneficial results. The office is not equipped, however, for testing such materials as coal, coke, bricks, oils, paints, etc. But little additional help would be required for this service if adequate apparatus were provided, and it would appear to be the part of wisdom and economy to establish a general testing department. The work could readily be carried on by the inspector of asphalts and cements, who is well fitted for such investigations. The office space is so limited that it would be impossible to install the necessary apparatus in our present quarters, but when the new municipal building is completed the Commissioners hope that this important matter will receive the consideration it deserves.

* * * * *

Very respectfully,

HENRY B. F. MACFARLAND,

HENRY L. WEST,

JOHN BIDDLE,

Commissioners of the District of Columbia.



REPORT OF THE OPERATIONS OF THE ENGINEER DEPARTMENT.

SURFACE DIVISION.

Capt. H. C. NEWCOMER,

Corps of Engineers, United States Army, Assistant to the Engineer Commissioner, in charge.

HIGHWAYS (STREETS, ROADS, BRIDGES, ETC.)	C. B. HUNT, <i>Computing Engineer.</i>
Sidewalks and alleys	H. N. MOSS, <i>Superintendent of Streets.</i>
Maintenance of county roads	MORRIS HACKER, <i>Superintendent of Roads.</i>
Construction and care of bridges	W. J. DOUGLAS, <i>Engineer of Bridges.</i>
SURVEYOR'S OFFICE	H. B. LOOKER, <i>Surveyor, District of Columbia.</i>
PARKING COMMISSION	TRUMAN LANHAM, <i>Superintendent of Parking.</i>

REPORT OF ASSISTANT IN CHARGE.

OFFICE OF THE ENGINEER COMMISSIONER, DISTRICT OF COLUMBIA,
Washington, October 7, 1902.

MAJOR: I have the honor to transmit herewith annual reports giving in detail the operations during the fiscal year ending June 30, 1902, of the surface division, the surveyor's office, and the parking commission, namely:

Report of the computing engineer, including reports of the superintendent of streets, superintendent of roads, and the engineer of bridges.

Report of the surveyor, District of Columbia.

Report of the superintendent of parking.

Very respectfully,

H. C. NEWCOMER,

*Capt., Corps of Engineers, U. S. Army,
Assistant to Engineer Commissioner, District of Columbia.*

Maj. JOHN BIDDLE,

Corps of Engineers, U. S. Army.

Engineer Commissioner, District of Columbia.

REPORT OF THE COMPUTING ENGINEER, DISTRICT OF COLUMBIA.

WASHINGTON, D. C., *July 1, 1902.*

SIR: I have the honor to submit the following report of the operations of the surface division of the engineer department of the District of Columbia for the fiscal year ended June 30, 1902.

Summary statement of work under appropriations for "Work on sundry streets and avenues," "Construction of county roads," and "Paving roadways under permit system."

Character of work.	Streets and avenues.	County roads and suburban streets.	Paving roadways.	Total.
Asphalt, 6-inch base	square yards	36,330	13,888.54	50,218.54
Vitrified-block gutters	do	4,598	2,083.77	6,681.77
Cement gutters	do	846.91		846.91
Asphalt block	do	17,524.77	5,614.95	23,839.47
Macadam roadways	do		40,276	40,276
Cobble gutters	do		9,979	9,979
Ordinary grading	cubic yards	34,452.72	157,088	198,388.72
Macadam grading	do	4,731.30	4,010	8,741.30
Old cobble removed	square yards	21,739.14	3,047	30,786.14
Old curb removed	linear feet	8,827.42	1,984.20	10,811.62
Curb set	do	14,273.01	8,924.87	27,096.70
Curb reset	do	13,594.97	3,002.31	16,597.28

In addition to the above, 13,113.14 square yards of asphalt and 495.63 square yards of vitrified-block gutter were laid in space of abandoned railroad tracks at cost of railroad companies.

In the report of the superintendent of streets all day-labor work under the appropriation for "Repairs to streets" is consolidated. It seems proper to segregate certain items of work, which are accordingly itemized, as follows:

The curb was reset and vitrified-block gutters laid on Louisiana avenue between Ninth and Tenth streets; the roadways of Warner street, Kirby street, Willard street, Hanover street, Seaton street, and Wiltberger street were macadamized and the gutters and sidewalks relaid where necessary; the roadway of First street SW. between Q and V streets was graveled, and the gutters repaved; the roadways of South Carolina avenue SE. between Eleventh and Twelfth streets, of L street SE. between Eighth and Ninth streets, and of First street SE. between M and N streets were macadamized and the gutters relaid; the roadway of C street SE. between Twelfth and Thirteenth streets was graveled; and the roadways of Quander street SE., Park place NE., Thirteenth street NE. from B street to North Carolina avenue and from H street to Maryland avenue, F street NE. from Thirteenth street to Maryland avenue and from Fourteenth to Fifteenth streets, Sixth street NE. from H to I streets, Tennessee avenue from F to Fifteenth streets, and Fourteenth NE. from H street to Maryland avenue were macadamized and the gutters relaid and curb reset where necessary.

The principal items of work under the appropriation for "Repairs to roads" were: The grading of Detroit street from Twelfth to Thirteenth streets, Brookland; the graveling of Nichols avenue north of the asylum gate; the macadamizing of Blagden Mill road along Rock Creek; of Nebraska avenue; of the Military road; of Highland avenue; of School street; of Vermillion street, Takoma; of V street NW. between First and North Capitol streets; of Whitney avenue east of Brightwood avenue; and of Twenty-second street, Langdon, south of Cincinnati street; the resurfacing of considerable portions of Brightwood avenue and of Bunker Hill road north of Fort street, and the graveling of Benning's road westward from Central avenue.

The following is a list of tables appended with this report:

Table A.—Street railways in the District of Columbia, July 1, 1902.
 B.—Statement of character and extent of street pavements, July 1, 1902.
 C.—Statement of mileage of street pavements, July 1, 1902.
 D.—Descriptive list of street pavements and suburban roadways, giving character, extent, cost, etc.
 E.—Schedules of work on streets and avenues and county roads and suburban streets.
 F.—Repairs to asphalt and concrete pavements for the year ended June 30, 1902.
 G.—Work done at cost of railroad companies.
 H.—Work done by day labor under appropriation for "Current repairs to streets, avenues, and alleys."
 I.—Regular permit.
 K.—Assessment work.
 L.—Replacing and repairing sidewalks and curbs around public reservations.
 M.—Miscellaneous work.

Table N.—Whole-cost work.

- O.—Repairs to cuts by plumbers and others.
- P.—Grading by the chain gang.

As an incident to the expenditure, by contract, of the bulk of the appropriation for "Improvements and repairs," "Repairs to concrete pavements," and "Construction of county roads," and on account of other appropriations, there were executed miscellaneous items of work by day labor during the year, as shown in detail in Table M. This work amounted to \$4,071.34.

The reports of the superintendent of streets, superintendent of roads, and the engineer of bridges are transmitted herewith.

The use of trap rock for macadam purposes was continued during the past fiscal year, the stone being secured from the quarry owned by the District of Columbia at Dickerson, Md. This material has given increasing satisfaction, and while not in every case where used the cheapest available, yet its undoubted wearing qualities justify the first cost as an economical expenditure. About 30,000 cubic yards in all were used during the year.

The labor of the chain gang was employed very advantageously throughout the year in grading various streets, avenues, and alleys (a detailed statement of which is given in Table P), and in improving Rock Creek Park. The appropriation for the hire of teams for this work is unfortunately a little less than sufficient to maintain a proper force throughout the year. The grading itemized in Table P cost about 18½ cents (including foreman's pay) per cubic yard, and was therefore decidedly economical considering the average class of material moved and length of haul. As a business proposition the appropriation for "Grading streets, alleys, and roads" should be increased from \$8,000 to \$10,000, and I so recommend.

A notable class of work during the year was that done at the cost of the Washington Railway and Electric Company in removing tracks belonging to that company, but not now operated, and paving the roadway space from which the tracks were removed to conform to the adjacent roadway pavement. Over 4½ miles of single track were so removed, pending their reconstruction as an underground electric road, at a cost to the company of \$31,483.95. A number of streets still contain these old, abandoned tracks, whose early removal under similar procedure will be the aim of this office.

Under "Construction of county roads" no less than 25 separate appropriations were expended, each in a separate locality. The practical difficulty of keeping within each small item of appropriation was very considerable, and the relative advantages of the method of appropriating for the new pavements on city streets in a single sum for each section was in striking contrast. These advantages would obtain in the case of construction of county roads if the total amount of that appropriation could be disbursed as one fund. This proposition has the approval of the district accounting officers and was recommended by me in my last annual report.

The expenditures under this office for the year from assessment and permit work largely exceeded \$250,000, divided among about 500 separate items of work, about 30 of which were alleys and the remainder sidewalks. The alleys were paved with asphalt blocks or vitrified blocks, while all the sidewalks laid were of cement except 5, which were of red brick. At present prices the cement walk is so clearly preferable to others that it is practically the only kind used.

The appropriation bill for the fiscal year 1903 provides that no property except that of the United States and the District of Columbia shall be exempt from special assessments, thus relieving this office from considerable embarrassment in cases where church and other like property formed part of a frontage under improvement.

Under the appropriation for the Bunker Hill road a radical change of the profile was made between Harewood road and the Baltimore and Ohio Railroad. The tracks of the City and Suburban Railway Company were also here relocated in the center of the roadway. Curb was set and the roadway macadamized with the funds provided, and the result is a very notable improvement.

The roadways of Cincinnati street and Connecticut avenue extended from Rock Creek to Cathedral avenue were paved with asphalt under a special appropriation for the purpose, the tracks of the Capital Traction Company being adjusted to grade and similarly paved simultaneously with the District work. A revision of the grade of Connecticut avenue extended was also made between Cleveland Park and the Pierce Mill road at a cost of nearly \$10,000 and with decided benefit to the profile of the avenue.

The work on the existing bridges and those under construction is detailed in the report of the engineer of bridges.

A bill to provide for a union passenger railroad station at the intersection of

Massachusetts and Delaware avenues passed the Senate May 15, 1902, and is now pending in the House of Representatives. A number of reports and estimates in connection with this bill were formulated in the office as an incident to its regular work.

My acknowledgments are due to the employees of the surface division for the work accomplished by the office during the year.

C. B. HUNT,
Computing Engineer, District of Columbia.

Maj. JOHN BIDDLE,

Corps of Engineers, U. S. Army.

Engineer Commissioner, District of Columbia.

(Through Capt. H. C. Newcomer.)

REPORT OF THE SUPERINTENDENT OF STREETS.

WASHINGTON, D. C., July 1, 1902.

SIR: I have the honor to submit herewith the annual report of the operations under my charge for the fiscal year ended June 30, 1902.

Table H is a summary of work done (by day labor, except cement sidewalks, which work was executed by contract) under the appropriation for "Current repairs to streets, avenues, and alleys." The cost of this work was \$29,791.82, including the repairs to 2,626 dangerous holes. Of this amount, about one-half was sidewalk and alley work and the other half repairs to street roadways.

Table I is a list of work done under the "permit system," by which the property owners requested the improvements and paid one-half the cost, the District paying the other half. Total, \$35,896.85.

Table K is a list of work done under the "assessment system." One-half the cost of work done under this system is charged against the abutting property. The total cost of such work was \$221,875.27.

Table L is a list of work paid for from the appropriation for "Replacing sidewalks and curbs around public reservations and municipal buildings." The amount expended under this head was \$13,828.28.

Table N is a list of work done in public space for private parties, for which they paid the entire cost. Deposit to cover the estimated cost of the work is required in advance of the work being done. This work amounted to \$1,097.42.

H. N. MOSS,
Superintendent of Streets.

THE COMPUTING ENGINEER DISTRICT OF COLUMBIA.

Respectfully transmitted to the Engineer Commissioner, District of Columbia, through Capt. H. C. Newcomer.

C. B. HUNT,
Computing Engineer.

Statement showing number of per diem employees, other than day laborers, surface division, employed upon regular and continuous work for thirty days or more, and appropriations from which paid, during the fiscal year ended June 30, 1902.

Designation.	Number.	Rate.
Assistant engineers.	3	\$6.00
		4.85
		4.00
Engineer of bridges.	1	" 125.00
Transitman.	1	3.50
Rodmen.	3	3.00
Chaimmen.	3	2.25
Draftsman.	1	3.50
Clerks.	2	4.50
Clerk.	1	4.00
Do.	1	3.00
		3.50
Messenger.	1	1.75
		3.50
Inspectors.	13	4.00
		5.00
Foremen.	11	4.00
		2.00
Subforemen.	3	3.00
Rollermen.	2	3.50
Plumber.	1	3.50
Bridge keepers.	4	" 50.00

^aRate per month.

APPROPRIATIONS FROM WHICH PAID.

Improvements and repairs		\$47,104.29
Construction of county roads, 1901		400.00
Columbia road east of Thirteenth street, 1901		64.00
Sherman avenue wall		144.00
Care and improvement of Rock Creek Park		716.00
Deposit and assessment fund		2,478.50
Quarry road bridge, 1901		86.30
Miscellaneous deposits		447.85
Grand total		51,440.94

TABLE A.—*Street railroads in operation in the District of Columbia July 1, 1902.*

Name of company.	Tracks in use, owned by company.			
	Underground electric.		Overhead electric.	
	Double.	Single.	Double.	Single.
Washington Traction and Electric Co.:				
Metropolitan R. R.	Miles.	Miles.	Miles.	Miles.
Columbia Rwy.	9.31	3.98	4.12	0.89
City and Suburban Rwy. of Washington	2.77		5.58	
Brightwood Rwy.	4.06	2.36	5.93	
Georgetown and Tenallytown Rwy.			4.16	
Anacostia and Potomac River R. R.		6.52	1.46	1.64
Washington and Great Falls Electric Rwy.			3.88	
Washington and Glen Echo R. R.			10	
Capital Traction		13.44	3.26	3.57
Baltimore and Washington Transit				.33
Washington, Alexandria and Mount Vernon Electric Rwy.		.90	.33	
Total		37	9.93	28.80
				2.96

TABLE B.—*Statement of character and extent of street pavements July 1, 1902.*

Section.	Asphalt and coal tar.	Asphalt block.	Vitrified block.	Granite.	Cobble.	Macadam.	Gravel and unimproved.	Total.
	Sq. yds.	Sq. yds.	Sq. yds.	Sq. yds.	Sq. yds.	Sq. yds.	Sq. yds.	Sq. yds.
Northwest	1,868,578	30,600	13,903	168,743	112,818	78,187	121,326	2,393,955
Northeast	233,339	153,086	0	17,147	1,738	57,063	482,087	944,410
Southeast	149,446	189,603	0	56,845	31,293	115,157	436,779	950,123
Southwest	162,491	30,504	2,943	233,973	65,450	43,264	156,982	695,607
Georgetown	138,095	16,134	0	60,363	21,872	14,897	39,653	290,954
Suburban	279,359	37,927	0	32,254	0	698,742	512,000	1,560,282
Total	2,831,108	437,854	16,846	569,325	233,171	1,007,250	1,748,827	6,844,381

TABLE C.—*Statement showing mileage of street pavements July 1, 1902.*

Section.	Asphalt and coal tar.		Asphalt block.		Vitrified block.		Granite.	
	Feet.	Miles.	Feet.	Miles.	Feet.	Miles.	Feet.	Miles.
Northwest	410,779	77.80	8,580	1.63	2,250	0.42	43,728	8.28
Northeast	61,923	11.73	31,772	6.01			4,700	.89
Southeast	39,087	7.40	40,471	7.66			15,406	2.92
Southwest	41,605	7.88	8,187	1.55	500	.10	55,710	10.55
Georgetown	38,517	7.20	5,493	1.04			17,271	3.27
Suburban	70,429	13.34	11,067	2.00			9,376	1.78
Total	662,340	125.44	105,570	19.98	2,750	.52	146,197	27.69
Section.	Cobble.		Macadam.		Gravel and unimproved.		Total.	
	Feet.	Miles.	Feet.	Miles.	Feet.	Miles.	Feet.	Miles.
Northwest	20,551	3.89	15,972	3.02	38,767	7.34	540,627	102.39
Northeast	750	.14	12,445	2.36	125,234	23.72	236,824	44.86
Southeast	8,623	1.63	30,616	5.80	111,049	21.03	245,252	46.45
Southwest	13,982	2.65	10,370	1.96	44,414	8.41	174,774	33.10
Georgetown	7,324	1.50	4,420	.84	11,391	2.16	85,016	16.06
Suburban	0	0	178,071	33.72	145,000	27.46	413,949	78.40
Total	51,830	9.81	251,894	47.70	475,855	90.12	1,696,436	321.26

TABLE D.—*Descriptive list of street pavements and suburban*

Street.	From—	To—	Kind of pavement or roadway.
A, NE	First	Second	Asphalt, H. B.
Do.	Second	Fourth	do
Do.	Fourth	Seventh	Coal tar
Do.	Seventh	Ninth	Asphalt block
A, SE	Second	Third	Asphalt, H. B.
Do.	Third	Sixth	Asphalt block
Do.	Sixth	Seventh	do
Do.	Seventh	North Carolina avenue	do
Acker	E and F, NE	Sixth and Seventh	do
Adams	Harrison	Jefferson	Gravel
Albemarle	Grant road	Thirty-eighth	Macadam
Do.	Thirty-eighth	Connecticut avenue	Gravel
Anacostia road	Pennsylvania avenue	District line	do
Arthur place	First, NW	New Jersey avenue	Asphalt block
Arthur street, Anacostia.	(Valley) Grant	High	Gravel
Avon	Cambridge	V	Asphalt, H. B.
B, NW	Delaware avenue	First	Asphalt block
Do.	First	Third	Granite
Do.	Sixth	Seventh	do
B, NW (north side)	Seventh	Ninth	Vitrified block
Do.	Ninth	Twelfth	do
B, NW	Seventh	Seventeenth	Cobble and rubble
Do.	Intersections	Seventh and Sixteenth	Asphalt, H. B.
B, NE	Fift	First	Coal tar
Do.	Delaware avenue	Second	do
Do.	Second	Fourth	Asphalt, H. B.
Do.	Fourth	Sixth	do
Do.	Sixth	Massachusetts avenue	Coal tar
Do.	Massachusetts avenue	Ninth	Asphalt, H. B.
Do.	Ninth	Eleventh	Gravel
B, SE	Eleventh	Fourteenth	do
Do.	New Jersey avenue	Second	Granite
Do.	do	do	Coal tar
Do.	First	do	Asphalt, H. B.
Do.	Second	Fifth	do
Do.	Fifth	Fourteenth	do
Do.	North Carolina avenue	Second	Granite
Do.	Eleventh	do	Coal tar
Do.	Nineteenth	do	Asphalt block
B, SW	First	New Jersey avenue	Macadam
Do.	do	Maryland avenue	Granite
Bacon, NW	Sixth	Fourteenth	Asphalt, H. B.
Baltimore	Fourteenth	Fifteenth	Gravel
Do.	Columbia road	Nineteenth	Asphalt, H. B.
Bancroft	Nineteenth	Twentieth	Asphalt block
Bates road	Connecticut avenue	Phelps place	Asphalt, B. B.
Belmont	do		Gravel
Belt road	Eighteenth	Columbia road	Asphalt, H. B.
Benning road	Fifteenth	Eastward	Asphalt, H. B.
Do.	do	do	Granite
Do.	Benning and Anacostia roads.	To Benning Bridge	Macadam
Benning road	Minnesota avenue	District line	do
Binney	Fourteenth	Fifteenth	Gravel
Bladensburg road	Florida avenue	do	Macadam
Do.	do	District line	Asphalt, H. B.
Blair road	Umatilla	do	Macadam
Blagden avenue			Gravel
Blagdens Mill road			Macadam
Brentwood road	Florida avenue	Patterson	Gravel
			Macadam

OPERATIONS OF THE ENGINEER DEPARTMENT, D. C.

roadways, with repairs to asphalt pavements to July 1, 1902.

TABLE D.—*Descriptive list of street pavements and suburban roadways,*

Street.	From—	To—	Kind of pavement or roadway.
Brentwood road	Florida avenue	District line	Gravel
Brightwood avenue	do	Pommeroy	Granite
Do	do	Grant	Granite
Do	Grant avenue	Irving	do
Do	Irving	Steuben	do
Do	do	do	do
Do	Steuben	Rock Creek Church road	Macadam
Do	Rock Creek Church road.	District line	do
Branch avenue	Pennsylvania Avenue extended.	Bowen road	Gravel
Broad Branch road			do
Brown street	Howard	Laurel	do
Bunker Hill road	Lincoln avenue	Baltimore and Ohio R. R.	Macadam
Do			Gravel
C, NW	Delaware avenue	First	Granite
Do	New Jersey avenue	do	Asphalt, H. B.
Do	Second	Third	Granite
Do	Third	Four-and-a-half	Asphalt, H. B.
Do	Four-and-a-half	Seventh	do
Do	Seventh	Eighth	Granite
Do	Ninth	Tenth	Belgian
Do	Tenth	Eleventh	Cobble
Do	Twelfth	Fifteenth	do
Do	Eleventh	Twelfth	Asphalt, H. B.
C, NE	Delaware avenue	First	Granite
Do	First	Third	do
Do	Fourth	Sixth	Asphalt block
Do	Sixth	Eighth	do
Do	Eighth	Tenth	do
Do	Tenth	Tennessee avenue	Gravel
C, SE	New York avenue	Fourth	Asphalt block
Do	Fourth	Sixth	do
Do	Sixth	Eleventh	Macadam
Do	Eleventh	Twelfth	Asphalt, H. B.
C, SW	New York avenue	First	do
Do	First	Four-and-a-half	Coal tar
Do	Four-and-a-half	Sixth	do
Do	Sixth	Seventh	Granite
Do	Ninth	Twelfth	Asphalt block
Do	Twelfth	Fourteenth	do
California	Florida avenue	Eighteenth	Asphalt, B. B.
Do	Eighteenth	Nineteenth	Asphalt, H. B.
Do	Columbi road	Phelps place	Macadam
Do	E and F, NE	First and Second	Asphalt, H. B.
Canal, east side	C, SW	C	Gravel
Canal, west side	do	do	Asphalt block
Canal	C, SW	E	Granite
Canal road	Thirty-seventh	Chain Bridge	Macadam
Bridge	Q and U	Thirtieth and Avon	Asphalt, H. B.
Carroll	B and C, SE	First and Second	do
Carroll avenue, Takoma Park.			Gravel
Caroline	T and U	Fifteenth and Sixteenth	Asphalt, B. B.
Cathedral avenue			Macadam
Cedar	S and T	Eighteenth and Nineteenth	Asphalt, H. B.
Central			Gravel
Chapel road			do
Chapin	Fourteenth	Alley west of Fourteenth	Asphalt block
Do	Alley	Westward	Granite
Do		Fifteenth	Asphalt, B. B.
Chain Bridge road			Gravel
Chestnut (Anacostia)	Maple	Arthur	do

with repairs to asphalt pavements to July 1, 1902—Continued.

TABLE D.—*Descriptive list of street pavements and suburban roadways,*

Street.	From—	To—	Kind of pavement or roadway.
Chestnut (Takoma Park).			Gravel
Champlain avenue	Florida avenue	Columbia road	Macadam
Cincinnati	Eighteenth	Rock Creek	Asphalt, H. B.
Do.	West of	Rock Creek	Asphalt
Cleveland place	W and Florida avenue	Twelfth and Thirteenth	Asphalt block
Clifton	Thirteenth	Fourteenth	Asphalt, B. B.
Columbia	O and Q	Ninth and Tenth	Coal tar
Do.	Sherman avenue	Thirteenth	Asphalt, H. B.
Do.	Thirteenth	Fourteenth	Asphalt block
Columbia road		West of Fourteenth	Asphalt
Do.	Fourteenth	Eighteenth	Macadam
Concord	Tenth NE	Thirteenth	do
Connecticut avenue	H	Florida avenue	Coal tar
Do.		Intersection of Florida avenue.	Asphalt, H. B.
Connecticut avenue (west side).	Florida avenue	Leroy place	do
Connecticut avenue and Columbia road.		Eighteenth	do
Connecticut avenue	California	Kalorama	Asphalt, B. B.
Do.	North of	Kalorama	do
Do.	Rock Creek	District line	Macadam
Conduit road			do
Corcoran	Q and R	Thirteenth and Fourteenth	Coal tar
Do.	do	Fourteenth and Fifteenth	do
Do.	do	Fifteenth and New Hampshire avenue.	Asphalt, H. B.
Do.	do	New Hampshire avenue and Nineteenth.	do
Crescent	Sixteenth	Westward	Asphalt block
D, NW	North Capitol	New Jersey avenue	Granite
Do.	New Jersey avenue	Fourth	Coal tar
Do.	Fifth	Sixth	Asphalt
Do.	Sixth to Eighth	Ninth to Tenth	Granite
Do.	Eighth	Ninth	Asphalt
Do.	Eleventh	Twelfth	Asphalt, H. B.
Do.	Twelfth	Fourteenth	Rubble
Do.	do	do	Cobble
Do.	Fourteenth	Fifteenth	Asphalt
Do.	Seventeenth	Eighteenth	Asphalt, H. B.
Do.	Eighteenth	Twenty-first	Macadam
D, NE	Delaware avenue	Massachusetts avenue	Asphalt, B. B.
Do.	Massachusetts avenue	Maryland avenue	Asphalt, H. B.
Do.	Seventh	Ninth	do
Do.	Ninth	Thirteenth	do
D, SE	South Capitol	First	do
Do.	First	Third	Asphalt block
Do.	Third	Sixth	do
Do.	Sixth	Seventh	do
Do.	do	do	do
Do.	Seventh	Ninth	do
Do.	Ninth	Kentucky avenue	Gravel
D, SW	South Capitol	First	Asphalt, B. B.
Do.	First	Third	Asphalt, H. B.
Do.	Third	Four-and-a-half	Coal tar
Do.	Four-and-a-half	Seventh	Rubble
Do.	Seventh	Fourteenth	Cobble
Daniels road			Gravel
Defrees	H and I, NW	North Capitol and First	Asphalt block
Delaware avenue	B, N	C, N	Granite

OPERATIONS OF THE ENGINEER DEPARTMENT, D. C. 11

with repairs to asphalt pavements to July 1, 1901—Continued.

Year laid.	Square yards.	Price per square yard.	Original cost.	Resurfaced.		Repairs—average annual cost per square yard.			Remarks.
				Year.	Cost per square yard.	Prior to resurfacing.	Since resurfacing.	Current year.	
	2,430								
1894	6,668								
1900	5,365	\$1.795							
1902	9,702	1.72	\$20,131.57						
1886	1,297								
1892	2,221	2.00	5,732.00		0	0	0	0	Permit work.
1873	2,683	3.20	8,586.00			\$0.035			
1901	3,262	1.791							
1900	2,448	1.77	4,660.00						
1902	2,177	1.72	4,741.13						
1900	10,323								
	3,775								
1873	36,246	3.20	115,988.00	1878	\$1.22				
				1884	.257				
				1887	.260				
				1895	.297				
				1897	.226				
1894	140	1.68	185.00	1902					Private expense
1894	1,507	1.68							
1897	11,011	1.77	20,742.00						
1891	2,195	2.00	3,951.00		0	0	0	.014	Permit work.
	1,000								
	62,300								
	30,000								
1877	2,067	2.18	4,507.00	1896	1.46	.03	.052	.049	
1875	2,129	3.00	6,388.00						
1888	4,551	2.00	17,452.00						4-inch base.
1890	1,163	2.25	4,842.00		0	0	0	0	
1902	966	1.72	2,584.05						
1894	1,617	3.44	5,559.00						
1875	3,818	3.00	11,455.00	1883	1.51	.071	.085	.025	On asphalt block.
1889	328				0	.032	0	.024	
1879	6,278		11,613.00						
1895	936	1.38	1,289.00		0	0	0	0	On granite block.
1899	1,374	1.76	4,679.00		0	0	0	0	
1873	1,500	1.50	2,263.00						
1873	2,105	.70	1,473.00						
1895	1,675		2,875.00						
1891	2,788	2.25	10,282.00		0	0	0	0	
1901	2,902								
1892	4,117	2.00	11,595.00		0	0	0	0	
1899	3,922	1.76	8,282.00		0	0	0	0	
1897	1,641	1.63	4,257.00		0	0	0	0	
1901	5,028	1.791			0	0	0	0	
1892	3,274	2.00	7,595.00		0	0	0	.0176	4-inch base.
1889	4,394	2.00	11,262.00						
1890	3,860	2.00	9,979.00						
1897	1,798	1.77	3,638.00						
1900	323	1.77	744.00						
1896	2,064	1.84	4,467.00						
1895	6,831		4,046.00						
1889	4,329	2.00	12,456.00		0	0	0	.016	
1891	2,905	2.25	10,721.00		0	0	0	0	
1887	2,363	1.99	7,068.00		0	.066		.124	
1875	4,079	1.50	6,119.00						
1873	6,736	.70	4,715.00						
	17,000								
1886	1,967								Permit work.
1879	2,056	1.92	3,951.00						

TABLE D.—*Descriptive list of street pavements and suburban roadways,*

Street.	From—	To—	Kind of pavement or roadway.
Delaware avenue.	C	E	Gravel.
Do.	B, S	C, S	Macadam.
Do.	C	G	do.
Do.	G	K	do.
Do.	K	N	Gravel.
De Sales	Seventeenth	Connecticut avenue	Coal tar.
Detroit	Twenty-fourth	B. and O. R. R.	Macadam.
Duncan place	D and E, NE	Twelfth and Thirteenth	Vitrified brick.
Dumbarton	Twenty-eighth	Thirty-second	Coal tar.
E, NW	North Capitol	New Jersey avenue	Asphalt, H. B.
Do	New Jersey avenue	Fourth	do.
Do	Fifth	Eleventh	do.
Do	Eleventh	Thirteenth	Granite.
Do	Thirteenth	Fourteenth	Asphalt, H. B.
Do	Pennsylvania avenue	Fifteenth	Asphalt.
Do	Seventeenth	Nineteenth	Cobble.
Do	Eighteenth	do	Coal tar.
Do	Nineteenth	Virginia avenue	Cobble.
Do	Twenty-third	Twenty-fourth	Asphalt.
E, NE	North Capitol	First	Granite.
Do	First	Fourth	Asphalt block.
Do	Fourth	Maryland avenue	Gravel.
E, SE	South Capitol	Third	Asphalt block.
Do	Third	Fourth	do.
Do	Fourth to Ninth and Tenth to Eleventh.	Ninth to Tenth to Eleventh.	Macadam.
Do	Ninth	Tenth	Asphalt, H. B.
Do	Tenth	Eleventh	Asphalt.
Do	Eleventh	Thirteenth	Asphalt, H. B.
Do	Do	Intersection of Thirteenth.	do.
Do	Do	Thirteenth eastward.	do.
E, SW	Extended to Fifteenth.	Seventeenth	do.
Do	South Capitol	First	Gravel.
Do	Virginia avenue	Third	Asphalt, B. B.
Do	Third	Four-and-a-half	Asphalt, H. B.
Do	Four-and-a-half	Seventh	do.
Do	Seventh	Thirteenth	do.
East Capitol	First	Ninth	do.
Do	Fourth	Eleventh	do.
East Capitol, north side	Eleventh	Thirteenth	Asphalt.
East Capitol, south side	do	do	Asphalt, H. B.
East Capitol	Thirteenth	Fifteenth	Asphalt.
Eckington place	A	R	Asphalt, H. B.
Elm	Third	Fourth	Asphalt.
Emerson place	E and F, NE	Thirteenth and Fourteenth.	Asphalt, B. B.
Emporia	Twelfth	Brentwood road.	Gravel.
Eric	Champlain	Sixteenth	Macadam.
Euclid place	Fourteenth	University place	Asphalt, B. B.
Executive avenue, west of Treasury	do	New Jersey avenue	Asphalt, H. B.
F, NW	North Capitol	do	Coal tar.
F, NW, south side	First	Fourth	Asphalt, H. B.
F, NW, north side	Fifth	Seventh	Coal tar.
F, NW	do	do	Asphalt, H. B.
F, NW (north of rail-road).	Seventh	Ninth	Asphalt, B. B.
F, NW	do	do	Granite.
Do	Ninth	Twelfth	Coal tar.
Do	Twelfth	Thirteenth	do.
Do	Thirteenth	Fifteenth	Asphalt, B. B.
Do	Seventeenth	Eighteenth	Asphalt, H. B.
Do	Eighteenth	Twenty-second	Coal tar.

with repairs to asphalt pavements to July 1, 1902—Continued.

Year laid.	Square yards.	Price per square yard.	Original cost.	Resurfaced.		Repairs—average annual cost per square yard.			Remarks.
				Year.	Cost per square yard.	Prior to re-surfacing.	Since resurfacing.	Current year.	
1890	4,500	2.30	\$0.57	\$4,018.00					
1891	4,727	.91	10,189.00						
1895	3,600	.67	3,430.00						
	6,000								
1875	2,493	3.70	9,225.21			\$0.012		\$0.004	
1899	675								
1892	1,360								
1887	3,600	1.98	10,000.81			.0088		.014	
1893	2,494	1.98	6,900.00		0	0	0	.023	
1879	4,932	1.47	7,367.00		0	.039	0	.029	
1878	9,323	1.75	16,335.00	1891	\$1.38	.006	\$0.018	.0037	
1879	2,487	2.00	5,386.00						
1900	1,093		2,936.00						
1889	3,031	1.20	5,294.00		0	0	0	.002	In place of asphalt blk ck. Cobble base.
1873	4,635	.70	3,247.00						
1873	1,642	3.20	5,244.00	1878	1.44		.022	.022	North side Rawlins square.
1872	4,831	.55	2,657.00						
1902	959	1.52	2,473.67						
1893	2,913		10,246.00						
1893	5,640	2.00	16,004.00						
	6,000								
1896	5,603	1.84	13,966.00						
1899	891	1.77	2,563.00						
1885	7,492		11,987.00						
1901	1,118	1.79	2,850.00		0	0	0	0	
1902	498	1.72	1,606.04						
1893	3,840	2.00	9,839.00		0	0	0	0	
1894	.671	1.90	1,650.00		0	0	0	0	
1897	2,363	1.63	4,704.00		0	0	0	0	
1898	3,607	1.57	9,453.00		0	0	0	0	
1893	3,000								
1890	3,104	2.00	7,059.00		0	0	0	.0009	
1897	1,580		3,768.00						
1886	2,371	1.97	5,785.00	1902	0	.043		.034	
1880	4,286	1.85	9,672.00		0	.0088		.0005	
1892	6,867	2.25	19,367.00		0	0	0	.001	
1879	10,511	2.04	21,822.00	1889	1.37	.082	.012	.0038	
1883	6,989	2.25	16,462.00		0	.019		.054	
1894	4,076	1.77	7,186.00		0	0	0	0	Macadam base.
1899	3,738	1.76	7,676.00		0	0	0	0	
1902	5,496	1.72	11,648.74						
1891	1,560	2.25	4,472.00		0	0	0	0	
1902	1,033	1.72	3,164.22						
1892	1,949	2.00	4,534.00		0	0	0	0	
1898	6,000								
1902			2,173.66						
1891	1,666	2.00	3,860.00		0	0	0	0	
1894	5,601					.054		.002	
1887	2,962	1.98	8,743.00	1900		.054	0	.01	
1879	4,382	1.47	6,454.00	1892	.675	.024		.046	
1877	2,731	3.25	8,875.00			.022		.0035	
1878	2,350	1.78	4,199.00	1889	.93	.035	.031	.0074	
1877	1,913	3.25	6,217.00	1891	1.61	.062	.02	.0014	
1879	527	1.93	1,017.26						
1877	4,257	2.69	11,151.00	1890	1.76	.05	.01	.0067	
1877	2,103	1.74	3,660.00	1882	1.07		.011		
1873	6,467	3.20	20,694.00	1891	1.20		.04	0	
1881	2,856	1.85	5,372.00		1882	.76	.003		
1873	8,790	3.20	28,128.00	1891	.714	.033	.08	.001	
				1878	1.34		.008	0	
				1897	1.73		.028	0	
				1900	.96				

TABLE D.—Descriptive list of street pavements and suburban roadways,

Street.	From—	To—	Kind of pavement or roadway.
F, NW	Twenty-second	Twenty-third	Asphalt, H. B.
Do	Virginia avenue	Twenty-fifth	Vitrified block
Do	Twenty-fifth	New Hampshire avenue	Granite
F, NE	North Capitol	Third	Asphalt, B. B.
Do	Third	Eastward	Asphalt, H. B.
Do	Extension to Ninth.		do
Do	Ninth	Maryland avenue	do
Do	Thirteenth	Fourteenth	Macadam
F, SE	First	Second	Asphalt block
F, SW	do	Four-and-a-half	Granite
Do	Four-and-a-half	Seventh	Asphalt, B. B.
Do	Seventh	Tenth	Asphalt block
Fenton place	K and L	North Capitol and First	Gravel
Fillmore	Harrison	Jefferson	do
Flagler place	V	Albany	Asphalt block
Flint	Brightwood avenue	Fifth	Macadam
Florida avenue	North Capitol	First, W	Asphalt, H. B.
Do	First	Fourth	Macadam
Do	Fourth	New Jersey avenue	Asphalt, B. B.
Do	do	Seventh	do
Do	Seventh	Ninth	Granite
Do	Ninth	Sixteenth	Macadam
Do	Sixteenth	Champlain avenue	do
Do	Champlain avenue	Eighteenth	do
Florida avenue (n. side)	Eighteenth	Connecticut avenue	Asphalt, H. B.
Florida avenue (s. side)	do	do	do
Florida avenue	Intersection S and R	Connecticut avenue.	do
Do	Q	S	Macadam
Do	North Capitol	R	Asphalt, H. B.
Florida avenue NE	New York avenue	New York avenue	do
Do	Brentwood road	Brentwood road	Macadam
Do	M	M	do
Do	Ninth	Ninth	do
Foxhall road	Ninth	Fifteenth	do
Frankfort	Twenty-second	Queen's Chapel road	do
Do	Tennallytown road	Westward	Asphalt
Franklin	R and S	Ninth and Tenth	Gravel
French	North Capitol	New Jersey avenue	Asphalt, B. B.
G, NW	New Jersey avenue to	Fourth and Fifth to Seventh	Coal tar
Do	Fourth	Fifth	do
Do	Fifth	Seventh	Asphalt, H. B.
Do	Seventh	Ninth	do
Do	Ninth	Fifteenth	do
Do	Tenth	Fourteenth	Asphalt, B. H.
Do	Ninth to Tenth and	Fourteenth to Fifteenth.	do
Do	Seventeenth	Twenty-second	Coal tar
Do	Twenty-second	Twenty-seventh	Belgian
G, NE	North Capitol	First	Asphalt, B. B.
Do	First	Fourth	Gravel
Do	Fourth	Sixth	do
Do	Sixth	Seventh	Macadam
Do	Maryland avenue	Fourteenth	Asphalt, H. B.
G, SE	Third	Eleventh	Granite
Do	Eleventh	Pennsylvania avenue	Asphalt block
Do	Thirteenth	Seventeenth	Macadam
G, SW	South Capitol	Third	Granite
Do	Third	Four-and-a-half	Asphalt, H. B.
Do	Four-and-a-half	Eighth	Coal tar

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with repairs to asphalt pavements to July 1, 1902—Continued.

Year laid.	Square yards.	Price per square yard.	Original cost.	Resurfaced.		Repairs—average annual cost per square yard.			Remarks.
				Year.	Cost per square yard.	Prior to resurfacing.	Since resurfacing.	Current year.	
1894	2,930	\$2.18 ¹	\$4,899.00	-----	0	0	0	0	
1894	2,694	-----	13,316.00	-----	-----	-----	-----	-----	
1894	1,711	-----	-----	-----	-----	-----	-----	-----	
1888	8,339	2.00	19,797.00	1901	-----	\$0.044	-----	0	
1897	1,308	1.63	2,724.00	-----	0	0	0	0	
1898	8,057	1.57	19,587.00	-----	0	0	0	0	
1900	3,024	1.80	8,677.00	-----	0	0	0	0	
	3,000	-----	-----	-----	-----	-----	-----	-----	
1900	2,466	1.77	4,072.00	-----	-----	-----	-----	-----	
1882	6,779	2.42	20,496.00	-----	-----	-----	-----	-----	
1874	4,315	3.20	13,808.00	1880	\$1.11	-----	\$0.019	\$0.0037	
1896	3,973	1.77	8,689.00	-----	-----	-----	-----	-----	
	2,000	-----	-----	-----	-----	-----	-----	-----	
	4,700	-----	-----	-----	-----	-----	-----	-----	
1901	3,270	1.77	7,619.00	-----	-----	-----	-----	-----	
1900	8,416	-----	-----	-----	-----	-----	-----	-----	
1896	5,840	1.63	13,403.00	-----	0	0	0	0	
1891	5,080	.99 ¹	8,826.00	-----	-----	-----	-----	-----	
1890	3,154	2.00	9,042.00	-----	0	0	0	0	
1888	7,208	2.00	18,132.00	-----	.022	-----	.055	-----	
1875	2,304	3.50	8,063.00	-----	-----	-----	-----	-----	
1875	20,436	1.50	-----	-----	-----	-----	-----	-----	
1876	6,082	1.50	9,048.00	-----	-----	-----	-----	-----	
1875	4,500	-----	-----	-----	-----	-----	-----	-----	
1895	2,435	1.94	4,911.00	-----	0	0	0	0	
1887	2,645	1.63	5,305.00	-----	0	0	0	0	
1875	1,906	1.94	4,713.00	-----	0	0	0	0	
1895	3,000	-----	-----	-----	-----	-----	-----	-----	
1895	2,402	1.94	6,767.00	-----	0	0	0	0	
1899	6,428	1.76	15,184.00	-----	0	0	0	0	
1895	3,042	.57 ¹	2,288.00	-----	-----	-----	-----	-----	
1897	8,793	.86	9,793.00	-----	-----	-----	-----	-----	
1896	6,314	.77 ¹	6,788.00	-----	-----	-----	-----	-----	
1892	13,109	.99 ¹	24,790.00	-----	-----	-----	-----	-----	
	5,000	-----	-----	-----	-----	-----	-----	-----	
	2,360	-----	-----	-----	-----	-----	-----	-----	
	5,000	-----	-----	-----	0	0	0	0	
	2,000	-----	-----	-----	-----	-----	-----	-----	
1889	1,692	2.00	4,218.00	-----	0	.004	-----	0	
1887	3,802	1.98	10,809.00	-----	0	.034	-----	.06	
1872	9,179	3.20	29,373.00	1879	.75	-----	.042	.009	
1894	1,394	2.18	3,893.00	-----	-----	-----	-----	-----	
1901	1,281	-----	-----	-----	-----	-----	-----	-----	
1872	2,514	3.20	8,045.00	1884	1.56	.014	.047	.0053	
1872	12,583	3.20	40,267.00	1878	.60	.017	-----	-----	
				1886	.315	-----	-----	-----	
				1889	-----	-----	-----	-----	
1895	1,565	2.19	3,715.00	-----	-----	-----	-----	-----	Do.
1900	1,147	-----	-----	1878	1.40	-----	.026	-----	Do.
1872	10,275	3.20	32,882.00	1882	-----	-----	.039	-----	
				1892	-----	-----	.014	.0012	
				1899	-----	-----	-----	-----	
1873	9,511	3.50	33,288.00	-----	-----	-----	-----	-----	
1890	2,308	2.00	7,420.00	-----	.017	-----	.004	-----	
1902	4,178	1.77	12,006.72	-----	-----	-----	-----	-----	
1888	2,100	.23	2,966.00	-----	-----	-----	-----	-----	
1891	1,768	.96	3,212.00	-----	-----	-----	-----	-----	
1897	552	1.63	-----	-----	0	0	0	0	
1894	5,300	-----	-----	-----	-----	-----	-----	-----	
1891	1,730	2.00	8,085.00	-----	-----	-----	-----	-----	
1893	3,737	1.05	11,399.00	-----	-----	-----	-----	-----	
1891	6,517	-----	18,690.00	-----	-----	-----	-----	-----	
1898	2,476	-----	5,545.00	1881	0	0	0	0	
1874	5,933	3.20	18,986.00	1.46	-----	.015	0	0	In place of coal tar.

TABLE D.—*Descriptive list of street pavements and suburban roadways,*

Street.	From—	To—	Kind of pavement or roadway.
G. SW.....	Eighth.....	Water.....	Capital.....
Gales.....	Fifteenth.....	Seventeenth.....	Asphalt block.....
Good Hope road.....			Macadam.....
Grace.....	Thirty-second.....	Thirty-third.....	Cobble.....
Grant avenue.....	Brightwood avenue.....	Florida avenue.....	Macadam.....
Grant.....	Sixteenth.....	Eighteenth.....	do.....
Grant place.....	G and H, NW.....	Ninth and Tenth.....	Asphalt, H. B.....
Grant road.....		Fillmore.....	Gravel.....
Grant (Pleasant).....	Nichols avenue.....	First.....	do.....
H, NW.....	North Capitol.....		Asphalt, H. B.....
Do.....	First.....	Fourth.....	Granite.....
Do.....	Fourth.....	Seventh.....	Coal tar.....
Do.....	Seventh.....	Thirteenth.....	do.....
Do.....	Thirteenth.....	Fourteenth.....	do.....
Do.....	Fourteenth.....	Fifteenth.....	Asphalt, H. B.....
Do.....	Fifteenth.....	Vermont avenue.....	do.....
Do.....	Vermont avenue.....	Connecticut avenue.....	Asphalt.....
Do.....	Connecticut avenue.....	Pennsylvania avenue.....	Asphalt, H. B.....
Do.....	Pennsylvania avenue.....	Twenty-second.....	Coal tar.....
Do.....	Twenty-second.....	Twenty-third.....	Asphalt, H. B.....
Do.....	Twenty-third.....	Twenty-fifth.....	Cobble.....
H, NE.....	North Capitol.....	First.....	Asphalt, H. B.....
H, NE. (north side).....			do.....
H, NE. (south side).....			Asphalt, B. B.....
H, SW.....	One-half.....	First.....	Macadam.....
H, SE.....	First.....	Second.....	Gravel.....
H, SW.....	do.....	Third.....	Asphalt, B. B.....
Do.....	Third.....	Four-and-a-half.....	Asphalt, H. B.....
Do.....	Four-and-a-half.....	Seventh.....	do.....
Do.....	Seventh.....	Ninth.....	do.....
Do.....	Ninth.....	Water.....	Granite.....
Harewood road.....			Gravel.....
Harrison.....		Navy-yard bridge eastward.....	Vitrified block.....
Do.....			[Asphalt, H. B.....]
Do.....		Extended to Minnesota avenue.....	do.....
Hartford.....	Tenth.....	Thirteenth.....	Gravel.....
Harvard.....	Brightwood avenue.....	do.....	do.....
Do.....	Thirteenth.....	Fourteenth.....	Asphalt block.....
High.....	Maple.....	Arthur.....	Gravel.....
Heckman, SE.....	First and Second.....	E and F.....	Asphalt block.....
Hillyer.....	Q and R.....	Twentieth and Twenty-first.....	do.....
Holmead.....	Whitney avenue.....	Spring road.....	Gravel.....
Hopkins.....	O and P.....	Twenty-tenth and Twenty-first.....	Asphalt.....
Howard.....	Brightwood avenue.....	Sixth.....	Macadam.....
Do.....	Fourteenth.....	Seventeenth.....	do.....
Do.....	Eighteenth.....	500 feet west.....	do.....
Huntington place.....	Fourteenth.....	University place.....	Asphalt block.....
I. NW.....	North Capitol.....	New Jersey avenue.....	Coal tar.....
Do.....	Second.....	Fifth.....	Asphalt, H. B.....
Do.....	Fifth.....	Eighth.....	do.....
Do.....	Eighth.....	Ninth.....	do.....
Do.....	Ninth.....	Tenth.....	do.....
Do.....	Tenth.....	Eleventh.....	do.....
Do.....	Eleventh.....	Thirteenth.....	Coal tar.....
Do.....	Thirteenth.....	Fifteenth.....	Asphalt, H. B.....
Do.....	Fifteenth.....	Seventeenth.....	Coal tar.....
Do.....	Seventeenth.....	Eighteenth.....	Asphalt, H. B.....
Do.....	Eighteenth.....	Pennsylvania avenue.....	do.....
Do.....	Pennsylvania avenue.....	Twenty-third.....	Asphalt.....
Do.....	Twenty-third.....	New Hampshire avenue.....	Asphalt, H. B.....

with repairs to asphalt pavements to July 1, 1902—Continued.

Year laid.	Square yards.	Price per square yard.	Original cost.	Resurfaced.		Repairs—average annual cost per square yard.			Remarks.
				Year.	Cost per square yard.	Prior to resurfacing.	Since resurfacing.	Current year.	
1875	5,050	\$3.00	\$16,149.00	1881	\$1.46	.....	\$0.02	0	
1882	3,015	1.77	8,620.89						
	10,000								
	1,400								
	4,000								
	3,000								
1875	1,435	4.25	6,097.00			\$0.036	.....	\$0.012	Neuchatel.
	13,700								
	1,250								
1885	3,465	2.19	9,926.00		0	0	0	0	In place of granite.
1879	4,872	1.87	9,403.00						
1887	6,381	1.97	19,044.00	1900	1.65	.046	.....	0	
1872	9,007	3.20	29,014.00	1880	.473	.012	.....	
1872	2,144	3.20	6,861.00	1889	.635	.....	.031	.0235	
1884	1,735	2.25	5,982.00	1886	1.81	.022	.04	.035	
						.035	.....	.046	
1896	2,422	2.18	6,365.00		0	0	0	0	In place of coal tar. On asphalt block.
1887	2,604	1.05	2,736.00			.019	.....	.056	
1884	5,451	2.25	18,608.00	1901	.817	.051	.....	.028	
1872	6,493	3.20	20,778.00	1880	1.262	.014	.019	.019	
1898	1,442	1.54	4,104.00		0	0	0	0	
1875	2,708	.70	1,896.00	1891	1.07	0.13	.088	.055	
1883	4,190	2.26	9,637.00	1891					
	14,124	2.30	31,551.00	1892	1.21	.050	.039	.026	
1870	12,591	2.00	32,590.00	1893		.019	.....	.026	
1,601	1,611		1,984.00						
1888	1,848		1,281.00						
1889	4,111	2.00	12,255.00						
1889	2,407	1.99	.....	0	0	0	0	0	
1881	4,327	1.85	10,128.00						
1883	2,138	2.23	6,126.00						
						.033	.....	.025	
1883	1,581	.671	5,105.00						
	12,000		12,000.00						
1899	1,099								
1,99	2,733	1.76	9,462.00						
1900	2,091	1.80	4,579.00						
						0	0	0	
1900	3,700								
1888	6,113								
1900	2,377	1.77	4,637.00						
	2,000								
1900	1,791	1.77	3,933.00						
1884	1,552								Permit work.
1892	6,500								4-inch base.
	749	2.00	3,084.00		0	0	0	0	
1891	952	.90	1,175.00						
	7,200								
	1,560								
1902	1,635	1.77	4,283.82						
1875	4,577	3.00	13,671.00	1889	1.03	.032	.003	.024	
1884	5,804	2.25	17,694.00						
1889	4,210	1.47	6,352.00						
						.027	.....	.0056	
1885	755	2.25	2,413.00						
1875	2,900	1.47	4,970.00						
1886	714	2.25	2,285.00						
1872	3,700	3.20	11,839.00	1878	.995	.015	0		
1895	4,632			1895	1.96	.03	0	0	
				1878	.883	.....		
1873	8,322	3.20	26,630.00	1894	1.59	.....	.022	.0004	
1880	2,672	1.85	7,431.00						
1886	5,327	2.25	12,331.00						
1891	6,644	1.20	17,192.00		0	0	0	.0105	Macadam base.
1897	3,249	1.63	5,125.00		0	0	0	0	

TABLE D.—*Descriptive list of street pavements and suburban roadways.*

Street.	From	To	Kind of pavement or roadway.
I, NW	New Hampshire avenue.	Twenty-sixth	Asphalt, H. B.
I, NE	North Capitol	First	Asphalt, B. B.
Do.	Sixth	Seventh	Macadam
Do.	Seventh	Florida avenue	Gravel
I, SE	South Capitol	New Jersey avenue	Granite
Do.	Second	Third	Macadam
Do.	Third	Eighth	do
Do.	Eighth	Eleventh	Asphalt, H. B.
Do.	Eleventh	Thirteenth	Gravel
I, SW	Canal	First	Macadam
Do.	First	Third	Gravel
Do.	Third	Sixth	Asphalt block
Do.	Sixth	Water	Gravel
Illinois avenue	Rock Creek Church road.	Grant circle	do
Irving place	Thirtieth	Avon	Asphalt, H. B.
Irving	Brightwood avenue	Thirteenth	Gravel
Indiana avenue	First	Third	Asphalt
Indiana and Louisiana avenues.	Third	Seventh	Granite
Do.	do	do	Asphalt, H. B.
Do.	do	do	Vitrified block
Jackson	G and H	First E and First W	Cobble
Do.	Nichols avenue	Taylor	Gravel
James	G and H, NE	Twelfth and Thirteenth NE.	Macadam
Jefferson	K (Georgetown)	M	Cobble
Do.	Nichols avenue	Taylor	Gravel
Jefferson place	M and N, NW	Eighteenth and Nineteenth	Asphalt block
Johnson	R and S	Fourteenth and Fifteenth	Asphalt, B. B.
Joliet	Connecticut avenue	Zoo entrance	Macadam
Do.	Wisconsin avenue	Tenallytown road	do
K, NW	North Capitol	First	Asphalt, H. B.
Do.	First	Third	Asphalt
Do.	Third	Seventh	Coal tar
Do.	North side Mount Vernon square.	do	Asphalt, H. B.
Do.	South side Mount Vernon square.	do	Asphalt, H. B.
Do.	Ninth	Eighteenth	Coal tar
Do.	Eighteenth	Twenty-third	Asphalt, H. B.
Do.	Twenty-third	Rock Creek	Trap rock (Seneca stone)
Do.	Rock Creek	Aqueduct Bridge	Granite
K, NE	North Capitol	First	Asphalt, B. B.
Do.	First	Seventh	Gravel
Do.	Eleventh	Twelfth	Macadam
K, SE	South Capitol	Second	do
Do.	Second	Sixth	Gravel
Do.	Virginia avenue	Fourteenth	do
K, SW	South Capitol	First	Granite
Do.	First	Water	Macadam
Kalorama	Eighteenth	Columbia road	Asphalt block
Do.	Nineteenth	Westward	Asphalt
Kansas avenue	Brightwood avenue	Trenton	Gravel
Kenesaw	Brightwood avenue to Thirteenth and Fourteenth to Sixteenth.	do	do
Do.	Thirteenth	Fourteenth	Asphalt block
Kenesaw and Park road		do	Macadam
Kentucky avenue		B	Gravel
Kenyon	Thirteenth	Fourteenth	Asphalt, H. B.
Kingman place		P and Q, Thirteenth and Fourteenth.	Asphalt

with repairs to asphalt pavements to July 1, 1902—Continued.

Year laid.	Square yards.	Price per square yard.	Original cost.	Resurfaced.		Repairs—average annual cost per square yard.			Remarks.
				Year.	Cost per square yard.	Prior to resurfacing.	Since resurfacing.	Current year.	
1898	3,136	\$1.54	\$7,034.00		0	0	0	0	
1889	3,294	2.00	8,809.00		0	0	0	\$0.003	
	2,200								
	7,000								
1900	3,867		4,038.00						
1892	1,292	.95	2,204.00						
1891	4,249	.93	6,796.00						
1886	3,214	1.63	9,352.00		0	0	0	0	
	3,100								
1901	1,424								
1889	3,530								
1886	4,850	1.77	10,493.00						
	2,600								
1900	8,400								
1893	1,251	2.00	2,725.00		0	0	0	0	
1888	6,493								
1887	8,529	2.00	23,824.00		0	\$0.007		0.015	4-inch base.
1881	9,038	2.00	33,149.00						
1881	4,054	1.85	6,889.00		0	.015		.017	
1897	205								
	3,800								
	7,500								
	1,400								
1874	2,839	.70	1,987.00						
	7,500								
1884	1,383								Permit work.
1889	1,416		3,887.00		0	0	0	0	
1899	850								
1902			18,778.10						
1899	4,537	1.76	9,859.00		0	0	0	0	
1894	3,984		7,130.00						Rubble base.
1874	8,384	3.20	26,829.00						
1873	1,800	3.20							
1895	2,000								
1875	27,551	3.00	82,654.00						
1880	11,671	1.83	21,358.00						
1874	7,521	3.50	38,813.00						
1874	4,996	2.50							
1873	18,021		63,075.00						
1875									
1889	4,498	2.00	13,513.00		0	0	0	0	
	15,000								
	1,475								
1901	6,000								
	3,500								
	2,760								
1894	1,706		5,654.00						
1890	7,931	.57	11,923.00						
1900	2,313	1.77	4,501.00						
	4,600								
1900	3,500				0	0	0	0	
1891	10,409								
1900	2,548	1.77	5,125.00						
1901	11,185								
	3,755								
1900	2,964	1.76	5,354.00		0	0	0	0	
1889	1,699		4,579.00						.134

TABLE D.—*Descriptive list of street pavements and suburban roadways,*

Street.	From—	To—	Kind of pavement or roadway.
Klinge road	Linnean Hill road to Rock Creek.		Macadam.
Do.	Woodley road		Gravel.
L, NW	New Jersey avenue		Asphalt, B. B.
Do.	Fifth		Granite.
Do.	Fifth		Coal tar.
Do.	Sixth		
Do.	Seventeenth		do.
Do.	Connecticut avenue		Asphalt, H. B.
Do.	Sixth		
Do.	Seventeenth	Connecticut avenue	Coal tar.
Do.	Twenty-first	Twenty-fifth	Asphalt, H. B.
Do.	Pennsylvania avenue	Twenty-sixth	do.
Do.	Twenty-sixth	Twenty-seventh	Asphalt, B. B.
L, NE	North Capitol	Eighth	Macadam.
L, SE	South Capitol	Second	do.
Do.	Second	Fourth	Gravel.
Do.	Fourth	Eighth	do.
L, SW	South Capitol	Four-and-a-half	do.
Do.	Four-and-a-half	Water	Macadam.
Lansing	Tenth	Thirteenth	Gravel.
Lamar			do.
Leroy place	Connecticut avenue	Phelps place	Asphalt, H. B.
Linnean Mill road			Gravel.
Lincoln avenue			do.
Loughboro road			do.
Louisiana avenue	Intersection C and Seventh.		Asphalt, H. B.
Do.	Intersection C and Seventh.		Vitrified block.
Do.	Front of Opera House.		Granite.
Do.	Ninth		do.
Do.	Ninth		do.
Lowell	Sixteenth	Eighteenth	Macadam.
Lydecker	Whitney avenue	Fourteenth	Gravel.
M, NW	North Capitol	First	Asphalt, H. B.
Do.	New Jersey avenue	Sixth	Asphalt, H. B.
Do.	Sixth	Fourteenth	do.
Do.	Fourteenth	Sixteenth	do.
Do.	Sixteenth	Eighteenth	Coal tar.
Do.	Eighteenth	New Hampshire avenue	Asphalt, H. B.
Do.	Twenty-first	Twenty-sixth	do.
Do.	Twenty-sixth	Rock Creek	do.
Do.	Rock Creek	Twenty-eighth	Coal tar.
M, NW, (S. side)	Twenty-eighth	Thirty-first	do.
M, NW, (N. side)	Thirty-first	Thirty-second	Asphalt, H. B.
M, NW	do	do	do.
Do.	Thirty-second	Thirty-third	do.
M, NE	Thirty-third	Thirty-sixth	do.
Do.	North Capitol	Second	do.
Do.	Second	Florida avenue	do.
M, SE	Twelfth	Trinidad avenue	Macadam.
Do.	South Capitol	New Jersey avenue	Cobble.
Do.	New Jersey avenue	Fourth	Rubble.
Do.	Fourth	Ninth	Cobble.
M, SW	South Capitol	Four-and-a-half	Rubble.
Do.	Four-and-a-half	Sixth	Granite.

with repairs to asphalt pavements to July 1, 1902—Continued.

Year laid.	Square yards.	Price per square yard.	Original cost.	Resurfaced.		Repairs—average annual cost per square yard.			Remarks.
				Year.	Cost per square yard.	Prior to re-surfacing.	Since resurfacing.	Current year.	
1901	4,877								
	7,600								
1890	5,288		\$13,997.00			\$0.002		\$0.022	
1877	2,655	\$1.78	4,744.00						
1877	23,890	2.18	51,115.00	1887		.002			
1877	23,890	2.18	51,115.00	1889			\$0.005		
				1891			.02		
				1897			.045	.033	
1883	2,645	2.27	6,017.00	1878	\$1.96		.015	.05	
				1888	.58		.035	.006	
1873	1,628	3.20	5,210.00	1902					Resurfaced, New Hampshire reave to Twenty-fourth.
1883	8,141	2.26	18,662.00			.043		.038	
1884	483	2.25	1,089.00			.04		.237	
1889	1,179	2.00	2,358.00		0	0	0	0	
1899	1,500								
1901	6,000								
	2,300								
1897	6,030		2,700.00						
	7,000								
1889	4,322		4,681.01						
	3,625								
	3,400								
1895	1,706	1.93	3,817.00		0	0	0	0	
	8,000								
	50,000								
	10,600								
1900	2,702				0	0	0	0	
1900	384								
1872	584	3.25	2,548.00						
1879	1,137	1.91	2,274.00						
1872	4,765	3.25	15,468.00						
1901	1,850								
	3,600								
1894	3,067	2.18	7,265.00		0	0	0	0	
1890	2,597	2.00	6,711.00			.0013		0	
1880	5,564	1.85	15,158.00			.012		.0321	
1879	13,147	1.75	32,199.00	1895	.38		.035	.011	
				1900		.04		.04	Resurfaced Seventh to Ninth.
1881	4,573	2.08	9,788.00	1902	0	.02		.06	
1873	5,851	3.20	18,723.00	1878	1.49				
1879	6,084	1.47	9,143.00	1895		.026	.012	.0147	
1882	9,171	2.26	2,188.00			.03		.007	
						.02		.044	
1895	500			1895	2.36				
				1897	1.36				
						.04		0	
1877	1,138	2.67	3,039.00			.15		.054	
1875	7,887	3.70	31,966.00	1888	.693		.033	.054	
1897	762	1.63	1,926.00		0	0	0	0	
1898	778	1.55	1,803.00		0	0	0	0	
1898	3,581	1.574	8,736.00		0	0	0	0	
1897	4,476	1.63	10,824.00		0	0	0	0	
1894	5,486	2.10	15,445.00		0	0	0	0	
1896	7,183	1.63	16,788.00		0	0	0	0	
1895	3,449	.495	2,666.00						
1876	5,724	.70	4,007.00						
1876	6,973	1.50	10,460.00						
1876	9,177	1.05	9,636.00						
1891	1,125		4,120.00						

TABLE D.—*Descriptive list of street pavements and suburban roadways,*

Street.	From—	To—	Kind of pavement or roadway.
M. SW	Four-and-a-half	Water	Granite
Madison	P and Q	Fifteenth and Seventeenth	Coal tar
Do	do	Seventeenth and Eighteenth	Asphalt, B. B
Do	M and N	Sixth and Seventh	do
McLean avenue	N and O	Third and Four-and-a-half	Asphalt block
Magnolia	Chestnut	Oak	Gravel
Maple (Takoma)	B. & O. R. R.	District line	do
Maple (Le Droit Park)	Florida avenue	Second	Asphalt, B. B
Do	Second	Fourth	Asphalt, H. B
Maple (Anacostia)	Pleasant	High	Gravel
Maine avenue	Third	Sixth	Cobble
Marion	P and Q	Sixth and Seventh	Asphalt, B. B
Maryland avenue NE	First	Fourth	Asphalt block
Do	Sixth	Eleventh	do
Do	Eleventh	Thirteenth	do
Do	Thirteenth	Fifteenth	do
Do	Intersection	Intersection Fifteenth	Asphalt, H. B
Maryland avenue SW	First	Third	do
Do	Third	Four-and-a-half	Asphalt
Do	Four-and-a-half	Seventh	Cobble
Do	Third	do	Rubble
Do	Seventh	Fourteenth	Belgian
Massachusetts avenue NW	North Capitol	New Jersey avenue	Coal tar
Do	New Jersey avenue	Third	Asphalt, H. B
Massachusetts avenue NW. (south side).	Fourth	Seventh	do
Massachusetts avenue NW. (north side).	do	do	do
Massachusetts avenue NW.	Intersection	Intersection Fourth.	do
Do	Ninth	Intersection Fifth.	do
Do	Thirteenth	Thirteenth	do
Do	Fourteenth	Fourteenth	Asphalt, B. B
Do	Intersection	Intersection Fifteenth.	do
Do	Highland Terrace,	Fourteenth to Fifteenth.	do
Triangular reservation east of Twentieth street.	Twentieth	Florida avenue	do
Massachusetts avenue NW.	Florida avenue	Sheridan circle	Asphalt, H. B
Do	Florida avenue	Belmont	do
Sheridan circle	Circle	First	Macadam
Massachusetts avenue NW.	North Capitol	Second	Asphalt, H. B
Massachusetts avenue NE.	First	Fourth	Asphalt block
Do	Second	do	Asphalt, H. B
Do	do	do	do
Do	Sixth	Eighth	Asphalt block
Do	Eighth	Eleventh	do
Michigan avenue	North Capitol	Lincoln avenue	Macadam
Military road	do	do	do
Do	do	do	Gravel
Milwaukee	Harrison	Pennsylvania avenue	do
Minnesota avenue	Third	Four-and-a-half	do
Missouri avenue	Four-and-a-half	Sixth	Granite
Do	do	do	Asphalt block
Morgan	M and N	New Jersey avenue and Kirby.	Asphalt, H. B
Do	Lydecker	Spring road	Gravel
Morris place	F and G, NE	Sixth and Seventh	Asphalt block
Murdock Mill road	do	do	Gravel
Myrtle	I and K	North Capitol and First	Asphalt, B. B

with repairs to asphalt pavements to July 1, 1902—Continued.

Year laid.	Square yards.	Price per square yard.	Original cost.	Resurfaced.		Repairs—average annual cost per square yard.			Remarks.
				Year.	Cost per square yard.	Prior to resurfacing.	Since resurfacing.	Current year.	
1894	555		\$2,763.00						
1895	2,674	\$3.00	8,022.00			.032		.018	
1892	2,271	2.00	7,122.00			.012		.026	
1880	1,538	2.00	4,619.00			.009		.022	
1887	2,127								
	4,000								
	2,500								
1890	3,237	2.00			0	0	0	0	
1891	3,680	2.25	11,486.00			.001		0	
	3,000								
1872	4,634	.70	3,244.00						
1889	2,861	2.00	7,766.00			.002		.021	
1887	11,535	2.00	29,945.00						
1889	14,451	2.00	39,634.00						
1890	8,269	2.00	22,965.00						
1891	9,635	2.00	24,840.00						
1901	2,360				0	0	0	0	
1883	3,394	2.20	7,800.00			.02		.145	In place of cobble.
1902	3,213	1.75	7,793.39						
1873	5,537								
1873	4,050	1.75	7,113.00						
1875	20,290	3.50	95,046.00						
1881	5,143	1.98	14,159.00			.043		.097	
1882	3,858	2.25	8,834.00	1891	\$1.43	.035	\$0.044	.045	
1881	3,910	1.83	7,349.00	1889	.300	.033	.088	.02	
1873	3,108	2.20	7,112.00			.057		.118	
1877	742	1.95	1,447.00			.024	0	.093	
1877	498	1.95	971.00	1899		.057	0	0	
1880	9,320	1.47	14,749.00			.012		.019	
1877	2,991	2.18	6,520.00	1884	1.43	.015	0.56	.0199	
1873	13,898	3.20	44,474.00	1892	.17	.015	.043		
1873	1,248	3.20	3,965.00	1893	.68		.135	.014	
1873	2,646	3.20	8,468.00			.005		.016	
						.025		0	
1875	5,817	3.00	17,453.00			.019		.021	
1897	2,572	1.57	4,994.00		0	0	0	0	
1900	5,156	1.78	12,023.00		0	0	0	0	
1890	12,250				0	0	0	0	
1891	4,069	2.25	12,102.00			.008		0	
1893	3,961	2.00	11,684.00						
1895	5,223	1.68	11,121.00		0	0	0	0	
1896	419	2.19	1,025.00		0	0	0	0	
1889	6,749	2.00	16,444.00						
1895	6,398	1.84	13,677.00						
1901	12,816								
	6,400								
	10,000								
	8,000								
1892	21,226								
1884	2,562		6,330.00						
1894	1,371	2.00	4,589.00						
1892	1,307	2.25	4,472.00		0	0	0	0	
	3,200								
1897	1,044	1.77	3,304.00						
	10,000								
1889	1,426	2.00	4,895.00			.009		0	

TABLE D.—*Descriptive list of street pavements and suburban roadways.*

Street.	From—	To—	Kind of pavement or roadway.
Mount Olivet road.			
N, NW	North Capitol	Third	Gravel
Do.	New Jersey avenue	Fifth	Asphalt, H. B.
Do.	Fifth	Ninth	Asphalt, B. B.
Do.	Ninth	Fourteenth	Asphalt, H. B.
Do.	Fourteenth	Scott square	do
Do.	Scott square	New Hampshire avenue	Coal tar
Do.	New Hampshire avenue	Twenty-first	do
Do.	Twenty-first	Twenty-second	Asphalt
Do.	Twenty-second	Twenty-fourth	Asphalt, H. B.
Do.	Twenty-seventh	Twenty-eighth	Asphalt block
Do.	Twenty-eighth	Thirty	Asphalt
Do.	Thirty	Thirty-second	Asphalt, H. B.
Do.	Thirty-second	Thirty-fifth	do
N, SE	Canal	Third	Rubble
N, SW	do	do	Cobble
Do.	Third	Four-and-a-half	Asphalt, H. B.
Do.	Four-and-a-half	Sixth	do
ylor road			Gravel
—			Macadam
wark	Tennallytown	road eastward.	do
wark (Fort)	Bunker Hill	road eastward.	Gravel
w Cut road			Macadam
New Hampshire avenue	G	Pennsylvania avenue	Rubble
Do.	Pennsylvania avenue	M	Asphalt, H. B.
Do.	M	P	do
Do.	P	Q	do
Do.	Q	R	Asphalt, B. B.
Do.	R	T	do
Do.	T	V	do
Do.	Rock Creek Church road.	Omaha	do
New Jersey avenue	B, N	C, N	Coal tar
Do.	C	D	do
New Jersey avenue (east side).	C	D	Granite
New Jersey avenue	D	L	Asphalt, H. B.
Do.	L	New York avenue	do
Do.	M	Florida avenue	Coal tar
New Jersey avenue SE	B	E	Granite
Do.	I	M	Macadam
Do.	M	N	Gravel
New York avenue	North Capitol	New Jersey avenue	Asphalt, B. B.
Do.	New Jersey avenue	Seventh	do
Do.	Ninth	Fifteenth	do
Do.	do	Fourteenth	Asphalt, H. B.
New York avenue (north side).	Fourteenth	Fifteenth	Coal tar
New York avenue	Seventeenth	Eighteenth	do
Do.	Nineteenth	Twenty-third	Macadam
Do.	North Capitol	Florida avenue	Asphalt
North Capitol	B	C	Asphalt, H. B.
Do.	D	E	Granite

with repairs to asphalt pavements to July 1, 1902—Continued.

Year laid.	Square yards.	Price per square yard.	Original cost.	Resurfaced.		Repairs—average annual cost per square yard.			Remarks.
				Year.	Cost per square yard.	Prior to resurfacing.	Since resurfacing	Current year.	
	6,000								
1892	5,642	\$2.25	\$17,341.00			\$0.0006		0	
1890	3,311	2.00	9,140.00			.0007		.016	
1883	4,454	2.25	10,160.00			.045		.048	
1880	6,802	4.47	12,421.00	1894	\$0.119	.026	\$0.017		
				1899	.517		.005	.015	
1881	3,249	1.84	6,236.00			.004		.017	
1873	6,556	3.20	20,982.00	1878	1.24		.04		
				1894	.70		.29		
				1898	1.177		.036	.019	
1875	517	3.60	1,656.00			.032			
1892	2,081	2.00	6,361.00		0	0	0	0	4-inch base.
1892	2,196	2.25	9,633.00		0	0	0	0	
1899	1,015	1.77	2,541.00		0	0	0	0	
1897	1,509		2,507.00		0	0	0	0	
1880	3,525	1.84	6,599.00			.013		.025	
1880	5,689	1.84	10,760.00			.016		.015	
1876	11,224	{ 1.05	13,230.00						
		{ 1.50							
1873	5,970	.70	4,179.00						
1900	2,619	1.80	5,770.00		0	0	0	0	
1897	2,301	1.56	5,897.00		0	0	0	0	
	13,000								
1902			4,466.02						
1901	7,111								
	1,400								
	9,000								
1875	7,967	1.50	11,951.00						
1879	6,902	1.47	10,525.00			.015		.007	
1882	10,047	2.25	22,988.00			.034		.043	
1885	2,538	2.26	6,029.00			.011		.024	
1888	4,164	2.00	11,036.00			.046		.114	
1889	8,809	2.00	22,937.00			.003		.032	
1890	6,805	2.00	22,073.00			.0015		.014	
1892	5,082	2.00	10,163.00		0	0	0	0	Permit work
1877	2,862	2.15	6,203.00	1888	.415	.018			
				1892			.057	.023	
1877	2,385	2.17	5,175.00				.077	.036	
1877	1,177	2.10	2,476.00						
1882	21,462	2.26	49,633.00				.029	.035	
1884	3,609	2.25	8,398.00						
1887	18,127	1.99	38,358.00	1895	.415	.037	.033	.038	
1879	8,775	1.87	16,881.00				.067	.023	
	5,500								
	3,300								
1890	5,604	2.00	15,040.00			.006		.019	
1889	9,229	2.00	25,723.00			.01		.049	
1872	22,317	3.20	71,416.00					.009	
1891 to 1897	1,895								This street is so changed by removing of center parking that it is practically a new pavement.
1872	1,862	3.00	5,589.00	1895	1.61	.031	.056	0	Removing center parking.
1873	3,510	3.20	11,231.00	1878	1.54		.038	.054	
1901	8,859								
1891	5,393	2.25	16,807.58			.006	0		
1883	2,790	2.25	6,755.00			.034		.076	
1893	2,386		7,440.00						

TABLE D.—*Descriptive list of street pavements and suburban roadways,*

Street.	From—	To—	Kind of pavement or roadway.
North Capitol	E	Massachusetts avenue	Coal tar
Do.	Massachusetts avenue	I	Asphalt
Do.	I	K	do
Do.	K	M	Asphalt, H. B.
Do.	M	New York avenue	do
Do.	New York avenue	O	do
Do.	O	Q	do
North Capitol (west side).	P	Florida avenue	do
Do.	Florida avenue	R	do
Do.	R	T	Macadam
Nichols avenue			Granite
Do.			do
Do.			Gravel
North Carolina avenue	First	Second	Asphalt block
SE.	Third	Sixth	do
Do.	Sixth	Eighth	do
Do.	Eighth	Eleventh	do
O, NW	North Capitol	First	Asphalt
Do.	First	Third	Asphalt, H. B.
Do.	do	do	do
Do.	New Jersey avenue	Vermont avenue	Coal tar
Do.	Vermont avenue	Thirteenth	Asphalt, H. B.
Do.	Fifteenth	Sixteenth	Coal tar
Do.	Sixteenth	Seventeenth	Asphalt, H. B.
Do.	Twenty-first	Twenty-first	Coal tar
Do.	Twenty-first	Twenty-second	Asphalt, B. B.
Do.	Twenty-eighth	Twenty-ninth	do
Do.	Twenty-ninth	Thirty-second	Asphalt, H. B.
Do.	Thirty-second	Thirty-fifth	Granite
Do.	Thirty-fifth	College gate	Coal tar
Oak	Brown	Center	Gravel
Do.	Carroll avenue	Magnolia	do
Ohio avenue	Twelfth	Fourteenth	Cobble
Do.	Fourteenth	Fifteenth	do
Olive	Twenty-eighth	Thirtieth	Asphalt block
Omaha	New Hampshire avenue	Fifth	Asphalt, B. B.
Do.	Bunker Hill road	Thirteenth	Gravel
Ontario	Superior	Columbia road	do
Oregon avenue	New Hampshire avenue	Eighteenth	Asphalt
P, NW	North Capitol	Fourth	Asphalt, B. B.
Do.	New Jersey avenue	Ninth	Asphalt, H. B.
Do.	Ninth	Fifteenth	do
Do.	Fifteenth	Eighteenth	do
Do.	Eighteenth	Twentieth	Coal tar
Do.	Twentieth	Twenty-second	Granite
Do.	Twenty-second	Rock Creek	Coal tar
Do.	Rock Creek	340' west	do
Do.	340' west of Rock Creek	Thirty-first	Granite
Do.	Thirty-first	Thirty-second	do
Do.	Thirty-second	Thirty-fifth	do
Do.	Thirty-fifth	Thirty-sixth	Asphalt, H. B.
P, NE	North Capitol	Florida avenue	do
P, SW	Four-and-a-half	Water	Granite
Park	Fourteenth	Seventeenth	Macadam
Park place	B and C, NE	Eleventh and Twelfth	Gravel
Patterson	M and N	North Capitol and First	do
Pennsylvania avenue	First	Seventh	Asphalt, H. B.
Do.	Seventh	Fifteenth	do
Do.	Intersections	First to Fifteenth	do
Do.	Fifteenth	Seventeenth	do

with repairs to asphalt pavements to July 1, 1901—Continued.

Year laid.	Square yards.	Price per square yard.	Original cost.	Resurfaced.		Repairs—average annual cost per square yard.			Remarks.
				Year.	Cost per square yard.	Prior to resurfacing.	Since resurfacing.	Current year.	
1887	3,856	\$1.98	\$8,461.00			\$0.031		\$0.063	
1887	7,457	2.00	18,826.00	1902		.028			
1889	2,887	2.00	6,528.00	1902		.03		.024	
1891	6,207	2.25	14,415.00	1899	\$0.403	0	0	.014	
1893	2,300	2.25	5,491.00		0	0	0	0	
1894	1,665	2.10	4,307.00					.0034	
1895	2,535	1.57	4,854.00		0	0	0	0	
1898	797	1.80	1,621.00		0	0	0	0	
1899	3,222	1.76	6,773.00		0	0	0	0	
1891	3,864		6,368.00						
1884	2,990								
1891	3,823								
1900	25,000								
1900	3,111	1.77	7,888.00						
1890	5,033	2.00	12,451.00						
1891	6,378	2.00	16,715.00						
1892	6,480	2.00	18,186.00						
1902	3,183	\$1.72	57,793.50						
1899	3,028	1.76	6,184.00		0	0	0	0	
1900	925	1.78	5,131.00		0	0	0	0	
1875	13,361	3.20	43,714.00	{ 1881 } { 1902 }	\$0.566	\$0.018	\$0.05	\$0.042	Resurfaced 9 to 10.
1882	481	2.00	1,080.00			.063		.079	
1875	1,663	3.00	4,988.00			.007		.03	
1883	1,697	2.29	3,886.00			.052		.072	
1887	2,011	1.97	5,131.00			.007		.0057	
1889	2,398	2.00	1,966.00			0		.0025	
1890	860	2.00	2,328.00		0	0	0	0	
1883	4,829	2.25	11,426.00			.044		.084	
1879	4,435	1.93	8,744.00						
1888	2,398	2.00	8,279.00			.018		.034	
	1,000								
1891	1,525								
1872	6,527	.70	4,570.00						
1874	2,642	.70	1,850.00						
1890	1,674	1.77	3,834.00						
1892	3,536	2.00	7,072.00		0	0	0	0	
	3,000								
1895	4,875								
1895	2,129	1.65	5,297.80						
1891	7,938	2.00	23,995.00		0	0	0	0	
1884	5,166	2.25	12,397.00	1902		.061		0	
1883	8,156	2.29	19,086.00			.057		.034	
1884	8,076	2.25	18,221.00	1901		.043		.025	
1873	1,569	3.20	5,021.00	{ 1878 } { 1896 }	1.01 .656		.036 .047	0	
1879	3,481	2.15	7,397.00						
1872	1,078	3.20	3,452.00	{ 1881 } { 1897 }	1.30 1.82	.012	.108	.01	
1872	1,590	3.20	5,088.00	1887	1.314		.036	.018	
1879	6,869	2.15	14,498.00						
1879	4,011	1.35	7,969.00						
1884	3,624	.85	4,655.00						
1900	938	1.78	2,721.00		0	0	0	0	
1896	2,539	1.63	7,224.00		0	0	0	0	
	2,000								
	6,000								
	1,700								
	2,700								
1890	28,486	1.18							
1890	33,974	1.18							
1877	16,061								
1890	11,497			1900	.68	0	0	0	Laid on old base.

TABLE D.—*Descriptive list of street pavements and suburban roadways,*

Street.	From—	To—	Kind of pavement or roadway.
Pennsylvania avenue	Seventeenth	Eighteenth	Coal tar
Pennsylvania avenue (north side).	Eighteenth	Twenty-first	Asphalt, H. B.
Pennsylvania avenue	Twenty-first	Twenty-third	Coal tar
Pennsylvania avenue (south side).	Eighteenth	do	do
Pennsylvania avenue (north side).	Twenty-third	Twenty-sixth	do
Pennsylvania avenue	Twenty-sixth	Rock Creek	
Pennsylvania avenue (south side).	Twenty-third	Twenty-fourth	Asphalt, H. B.
Pennsylvania avenue	Twenty-fourth	Twenty-sixth	do
Do	Rock Creek	Twenty-sixth	Coal tar
Pennsylvania avenue, SE (north side).	Second	Eight	Asphalt, B. B.
Pennsylvania avenue (south side).	do	Fourth	Asphalt, H. B.
Pennsylvania avenue (north side).	Fourth	Seventh	do
Pennsylvania avenue	Eighth	Eleventh	do
Pennsylvania avenue	do	do	Asphalt, B. B.
Pennsylvania avenue	Eleventh	Twelfth	Asphalt, H. B.
Pennsylvania avenue, SE.	Twelfth	Thirteenth	Asphalt
Pennsylvania avenue	Thirteenth	Bridge	Macadam
Do	Eastern Branch	Minnesota avenue	do
Do	Minnesota avenue	Branch avenue	Gravel
Phelps place	Bancroft	California	Asphalt, H. B.
Philadelphia	Bunker Hill road	Thirteenth	Gravel
Pickford place	F	G	Asphalt block
Pierce	Land M	New Jersey avenue and North Capitol	Asphalt, B. B.
Pierce place	S and T	Fourteenth and Fifteenth	Coal tar
Do	do	Fifteenth and Sixteenth	Asphalt
Piney Branch road			Gravel
Pleasant Drive			Macadam
Polk			Gravel
Pomeroy	Brightwood avenue	East	do
Portner place	U and V	Fourteenth and Fifteenth	Asphalt, B. B.
Potomac	M	Prospect	Asphalt block
Do			Granite
Princeton	do	do	do
Do	Prospect	O	Asphalt, H. B.
Providence	Thirteenth	Fourteenth	Asphalt block
	Brightwood avenue	Thirteenth	Gravel
	Ninth	Fourteenth	Macadam
Q, NW	Third	East of Fourteenth	do
Do	do	New Jersey avenue	Asphalt, B. B.
Do	New Jersey avenue	Florida avenue	Asphalt
Do	Fifth	Fifth	Coal tar
		Sixth	Asphalt, B. B.
Do	Sixth	Rhode Island avenue	Coal tar
Do	Rhode Island avenue	Vermont avenue	Asphalt, H. B.
Do	Fourteenth	Sixteenth	Coal tar
Do	Sixteenth	Seventeenth	do
Do	Seventeenth	Nineteenth	Asphalt, B. B.
Do	Nineteenth	Twentieth	Coal tar
Do	Twentieth	Twenty-first	do
Do	Massachusetts avenue	Twenty-second	do
Do	do	Twenty-first	do
Do	Twenty-eighth	Thirtieth	Asphalt, B. B.
Do	Thirtieth	Valley	Coal tar
Do	Valley	Thirty-second	do
Do	Thirty-second	Thirty-fifth	Asphalt, B. B.
Q, NE	Lincoln avenue	Eckington place	Asphalt, H. B.
Quarry road	Columbia road	Zoo Park	Macadam

with repairs to asphalt pavements to July 1, 1901—Continued.

TABLE D.—*Descriptive list of street pavements and suburban roadways,*

Street.	From—	To—	Kind of pavement or roadway.
Queens Chapel road.			
Quincy	Lincoln avenue	Eckington place	Gravel.
Do.	Third, E	Eckington line	Asphalt, H. B.
Do.	Brightwood	avenue east	do
Do.	Connecticut avenue	Twenty-ninth	Macadam.
R, NW	Florida avenue	Lincoln avenue	Asphalt, B. B.
Do.	do	Seventh	Asphalt, H. B.
Do.	Seventh	Ninth	do
Do.	Ninth	Fourteenth	Coal tar.
Do.	Fourteenth	Sixteenth	Asphalt, H. B.
Do.	Sixteenth	New Hampshire avenue	Coal tar
Do.	New Hampshire avenue	Twenty-first	Asphalt, H. B.
Do.	Connecticut avenue	Florida avenue	Asphalt, H. B.
Do.	Twenty-first	Massachusetts avenue	Gravel.
Do.	Florida avenue		
R, NE	Thirty-second	Thirty-fourth	Asphalt block.
Do.	Thirty-fourth	Thirty-fifth	do
Randolph	Lincoln avenue	Fourth	Asphalt.
Do.	Fourth	Brightwood road	Asphalt, H. B.
Randolph	North Capitol	First	Macadam.
Do.	Connecticut avenue	Twenty-ninth	Asphalt block.
Do.	Second, E	Fourth	Asphalt.
Rhode Island avenue.	New Jersey avenue	Florida avenue, east	Asphalt, H. B.
Do.	do	Fifth	Asphalt, B. B.
Do.	Fifth	Ninth	Asphalt, H. B.
Do.	Ninth	Thirteenth	
Do.	Thirteenth	Sixteenth	do
Do.	Around Scott circle.	Scott circle.	do
Do.	Sixteenth	Connecticut avenue	do
Ridge	M and N	Fourth and Fifth	Asphalt, B. B.
Ridge road.	R and S		Gravel.
Riggs		Thirteenth and Fourteenth.	Asphalt block.
Do.	do	Sixteenth and Seventeenth.	Asphalt, H. B.
Do.	do	New Hampshire avenue and Nineteenth.	do
Robinson	L and M	Sixth and Water	Gravel.
Rock Creek Church road.			Macadam.
Do.			Gravel.
S, NW	North Capitol	First	Macadam.
Do.	Florida avenue	Seventh	Asphalt, H. B.
Do.	Seventh	Eleventh	Coal tar
Do.	Eleventh	Fourteenth	do
Do.	Fourteenth	Sixteenth	do
Do.	Sixteenth	New Hampshire avenue	Asphalt, B. B.
Do.	New Hampshire avenue.	Twenty-first	Asphalt, H. B.
Do.	Twenty-first	Connecticut avenue	Asphalt, B. B.
Do.	Florida avenue	Phelps place	do
Do.	Phelps place	Twenty-third	Asphalt, H. B.
S, NE	Second	Brentwood road	Asphalt.
Seaton, NE	do	Fourth	do
Do.	Sixth	Brentwood road	do
Seaton, NW	North Capitol	First	Macadam.
Sampson	P and Q	Fourteenth and Fifteenth.	Asphalt, B. B.
Sargent road			Gravel.
School	D and E	Four-and-a-half and Sixth.	Macadam.
Do.	Park	Grant	Macadam.

with repairs to asphalt pavements to July 1, 1902—Continued.

Year laid.	Square yards.	Price per square yard.	Original cost.	Resurfaced.		Repairs—average annual cost per square yard.			Remarks.
				Year.	Cost per square yard.	Prior to resurfacing.	Since resurfacing.	Current year.	
	18,000								
1891	3,670	\$2.25	\$11,580.00		0	0	0	0	
1892	919	2.25	3,245.00		0	0	0	0	
1896	2,013								
1902	4,518	1.77							
	18,000								
1890	3,051	2.00	14,776.00			\$0.009		\$0.035	
1890	2,040	2.25							
1890	8,483	2.25	29,713.00		0	0	0	.0018	
1888	1,602	2.00	4,062.00			.035		.0078	
1884	7,638	2.25	17,249.00			.037		.032	
1875	4,502	3.00	13,507.00	1896	\$1.99	.01		0	
	18,000								
1890	4,155	2.00	14,873.00			.0013		.0015	
1891	3,498	2.25	12,258.00		0	0	0	0	
	18,000								
1887	1,411	1.98	3,583.00	1902		.051		0	
1892	733	2.25	2,248.00		0	0	0	0	
	18,000								
1900	2,114	1.77	5,618.00						
1899	995	1.77	2,681.00						
	18,000								
1890	8,535					.01		.04	Private expense.
	18,000								
1890	2,321	2.25	6,993.00		0	0	0	0	Permit work.
	18,000								
1902	2,202	1.77	19,155.29		0	0	0	.011	
	18,000								
1897	1,146	1.54	2,560.00		0	0	0	0	
1888	2,313	2.00	5,459.00			.011		.059	
1883	8,120					.048		.078	Private expense.
	18,000								
1882	9,219	2.25	21,077.00			.026		.08	
1881	7,723	1.84	14,574.00			.045		.019	
	18,000								
1873	12,600	3.20	40,319.00	1888	.83	.03	\$0.0071		
	18,000			1900	1.017		0		
	18,000			1878	1.35		.025		
	18,000			1893	.742		.146		
	18,000			1895	1.60		.0014	.008	
	18,000				0		.0016	0	
	18,000								
1886	2,630				0	0	0	0	
	18,000								
1891	1,620	2.25	5,079.00		0	0	0	.0086	
	18,000								
1896	2,555	1.63	5,508.00		0	0	0	0	
	18,000								
	950								
	20,000								
	13,000								
	3,000								
1894	4,539	2.10	11,937.00		0	0	0	0	
1889	5,058	2.00	14,526.00	1901	1.13	.011	0	.03	
	18,000								
1875	5,135	3.00	15,405.00	1892	1.045	.02	} 0	.0007	
	18,000			1900	.44	.045			
	18,000			1889	.55	.023	.051		
	18,000			1894	.833		.036	.0197	
	18,000								
1889	2,681	2.00	5,734.00			.012		.044	
1894	5,004	2.10	14,295.00		0	0	0	0	
	18,000								
1890	1,077	2.00	3,647.00		0	0	0	0	
	18,000								
1895	1,037	2.00			0	0	0	0	
1901	2,681	1.75	6,014.00		0	0	0	0	
	18,000								
	2,800				0	0	0	0	
	1,000				0	0	0	0	
	18,000								
	2,600								
1890	1,733						.0016	.038	
	9,000								
	2,000								
	2,000								

Do

TABLE D.—*Descriptive list of street pavements and suburban roadways.*

STREET	From—	To—	Kind of pavement or roadway.
Sheridan			Macadam.
Sherman			do
Spruce and Barker	Florida avenue	Larch	Asphalt, H. B.
Spruce	Larch	Harewood	do
Spruce	Morris road	Arthur	Gravel.
Stephen	Brightwood avenue	Sherman	Macadam.
Stephenson	Fourteenth	Alley west of Fourteenth	Asphalt block.
Do.	Alley	Westward	Granite.
Do.		West to Fifteenth.	Asphalt, B. B.
Sunderland place	N and O.	Nine-teenth and Twentieth	Asphalt block.
Supervue	Champlain	Sixteenth	Gravel.
South Capitol	B	E	do
Do.	E	H	Granite.
Do.	H	K	do
Do.	K	M	Asphalt
Do.	M	O	do
Do.	O	P	Cobble.
Do.	P	River	Asphalt block.
T. NW	Florida avenue	Seventh	Asphalt, H. B.
Do.	Seventh	Ninth	do
Do.	Ninth	Tenth	do
Do.	Tenth	Fourteenth	do
Do.	Fourteenth	New Hampshire avenue	do
Do.	New Hampshire avenue	Florida avenue	Macadam.
Do.	Second	Eckington line	Asphalt, B. B.
Talleytown road			
Tennessee avenue	East Capitol	B	Macadam.
Do.	B	D	Asph. It. H. B.
Thomas	Sixth	Eckington line	Gravel.
Trenton	Brightwood avenue	Eighth	Asphalt, B. B.
Trinidad		King's subdivision.	Macadam.
Tunaway road			(Gravel.
U. NW		Le Droit (Second) eastward.	Asphalt block.
Do.	Ninth	Tenth	Asphalt, H. B.
Do.	Tenth	Fourteenth	do
Do.	Fourteenth	Sixteenth	do
Do.	Sixteenth	Eighteenth	do
Do.	Twenty-eighth	Thirty-first	Macadam.
Do.	Thirty-first	Thirty-second	Asphalt, H. B.
Do.	Thirty-second	Thirty-fifth	do
Union	M and O.	Four-and-a-half and Sixth	Cobble.
University place	Welling	Huntington	Asphalt, H. B.
V. NW	Thirteenth	Fourteenth	do
Do.	Fourteenth	Fifteenth	do
Valley	P	U	Asphalt block.
Van	Third	Four-and-a-half	do
Vermilion	Piney Branch road	Baltimore and Ohio R. R.	Gravel.
Vernon	Eighteenth	Nineteenth	Asphalt, B. B.
Virginia avenue, NW		Intersection of B.	Asphalt, H. B.
Do.	E	G	do
Do.	G	Twenty-seventh	Gravel.
Virginia avenue, SE	Second	Third	Macadam.
Do.	Third	Eleventh	Gravel.
Virginia avenue, SW	South Capitol	Delaware avenue	Asphalt, H. B.
Do.	Second	Four-and-a-half	Gravel.
Do.	Four-and-a-half	Seventh	do
Do.	Ninth	Twelfth	Granite.
Vermont avenue	H	I	do
Do.	K	M	Coal tar.

with repairs to asphalt pavements to July 1, 1902—Continued.

Year laid.	Square yards.	Price per square yard.	Original cost.	Resurfaced.		Repairs—average annual cost per square yard.			Remarks.
				Year.	Cost per square yard.	Prior to resurfacing.	Since resurfacing.	Current year.	
	2,700								
	20,000								
1897	2,319	\$1.56	\$6,403.00		0	0	0	0	
1900	2,064	1.80	4,239.00		0	0	0	0	
	1,600								
1893	2,712	1.05	4,923.00						
1888	483								Permit work.
1889	755								
1889	1,000				0	0	0	0	
1885	1,185								Do.
1895	5,800								
	6,000								
1894	5,654		20,000.00						
1898	4,416		5,870.78						
1091	2,941	1.79	6,584.64						
1902	6,060	1.72	13,070.24						
	1,530								
1902	6,616	1.77	11,547.19						
1897	1,332	1.56	3,317.00		0	0	0	0	
1896	1,556	1.63	3,760.00		0	0	0	0	
1891	1,766	2.25	5,210.00		0	0	0	0	
1892	5,256	2.00	16,845.00		0	0	0	\$0.0033	
1895	5,146	1.68	13,990.00		0	0	0	0	
	5,300								
	6,800				0	0	0	.0018	Private expense.
1899	48,700								
	2,713	1.76	6,718.00						
	4,500								
	2,000								
1902			2,875.57						
1901	3,205								
	11,000								
1895	1,667	1.78	3,024.00						
1891	2,547	2.25	8,456.00						
{ 1893	4,808	2.25	16,737.00		0	0	0	0	
{ 1894		2.18							
1891	3,310	2.25	12,762.00	1902		.002		0	Resurfaced between Fifteenth and Sixteenth.
1896	{ 6543	1.83	10,742.00		0	0	0	0	
	2,900	1.63							
	5,700								
1895	4,226	1.94	11,415.00		0	0	0	0	4-inch base.
1894	2,371	1.93	8,232.00		0	0	0	0	Do.
	5,333								
1900	1,957	1.77	4,818.00		0	0	0	0	
1894	2,128	1.53	10,891.00		0	0	0	0	
1894	2,415	1.68							
1895	3,849	1.78	8,625.00						
1898	1,175	1.77	3,335.00						
	4,000								
	1,866				0	0	0	.0125	
1900	443	1.69	1,439.00		0	0	0	0	
1895	{ 397	1.94	19,998.00		0	0	0	0	
	8,327	2.19							
	7,200								
1889	1,926	.75	3,336.00						
1888	16,894		12,383.00						
1897	1,850	1.56	4,363.00		0	0	0	0	
	5,000								
	2,500								
	2,500								
1881	3,836	2.31	11,769.00		1880	\$1.175	.0096	.0015	
	4,156				1878				
1872	6,536	3.20	20,917.00		1882	1.14	.027	.008	
					1894	.25	.036	.008	

a Eight-inch base.

TABLE D.—*Descriptive list of street pavements and suburban roadways,*

Street.	From—	To—	Kind of pavement or roadway.
Sheridan			Macadam
Sherman			do
Spruce and Bohrer	Florida avenue	Larch	Asphalt, H. B.
Spruce	Larch	Harewood	do
Spring	Morris road	Arthur	Gravel
Steuben	Brightwood avenue	Sherman	Macadam
Stoughton	Fourteenth	Alley west of Fourteenth	Asphalt block
Do.	Alley	Westward	Granite
Do.		West to Fifteenth.	Asphalt, B. B.
Sunderland place	N and O	Nineteenth and Twentieth	Asphalt block
Superior	Champlain	Sixteenth	Gravel
South Capitol	B	E	do
Do.	E	H	Granite
Do.	H	K	do
Do.	K	M	Asphalt
Do.	M	O	do
Do.	O	P	Cobble
Do.	P	River	Asphalt block
T, NW	Florida avenue	Seventh	Asphalt, H. B.
Do.	Seventh	Ninth	do
Do.	Ninth	Tenth	do
Do.	Tenth	Fourteenth	do
Do.	Fourteenth	New Hampshire avenue	do
Do.	New Hampshire avenue	Florida avenue	Macadam
Do.	Second	Eckington line	Asphalt, B. B.
Tenleytown road	East Capitol	B	Macadam
Tennessee avenue	B	D	Asph. & lt. H. B.
Do.	Sixth	Eckington line	Gravel
Thomas	Brightwood avenue	Eighth	Asphalt, B. B.
Trenton			Macadam
Trinidad		King's subdivision.	do
Tunlaw road			Gravel
U, NW		Le Droit (Second) eastward.	Asphalt block
Do.	Ninth	Tenth	Asphalt, H. B.
Do.	Tenth	Fourteenth	do
Do.	Fourteenth	Sixteenth	do
Do.	Sixteenth	Eighteenth	do
Do.	Twenty-eighth	Thirty-first	Macadam
Do.	Thirty-first	Thirty-second	Asphalt, H. B.
Do.	Thirty-second	Thirty-fifth	do
Union	M and O	Four-and-a-half and Sixth	Cobble
University place	Welling	Huntington	Asphalt, H. B.
V, NW	Thirteenth	Fourteenth	do
Do.	Fourteenth	Fifteenth	do
Valley	P	U	Asphalt block
Van	Third	Four-and-a-half	do
Vernon	Piney Branch road	Baltimore and Ohio R. R.	Gravel
Vernon	Eighteenth	Nineteenth	Asphalt, B. B.
Virginia avenue, NW		Intersection of B.	Asphalt, H. B.
Do.	E	G	do
Do.	G	Twenty-seventh	Gravel
Virginia avenue, SE	Second	Third	Macadam
Do.	Third	Eleventh	Gravel
Virginia avenue, SW	South Capitol	Delaware avenue	Asphalt, H. B.
Do.	Second	Four-and-a-half	Gravel
Do.	Four-and-a-half	Seventh	do
Do.	Ninth	Twelfth	Granite
Vermont avenue	H	I	do
Do.	K	M	Coal tar
			do

with repairs to asphalt pavements to July 1, 1902—Continued.

Year laid.	Square yards.	Price per square yard.	Original cost.	Resurfaced.		Repairs—average annual cost per square yard.			Remarks.
				Year.	Cost per square yard.	Prior to re-surfacing.	Since resurfacing.	Current year.	
	2,700								
	20,000								
1897	2,319	\$1.56	\$6,403.00		0	0	0	0	
1900	2,064	1.80	4,239.00		0	0	0	0	
	1,600								
1893	2,712	1.05	4,923.00						
1888	483								Permit work.
1889	755								
1889	1,099				0	0	0	0	
1885	1,185								Do.
1895	5,800								
	6,000								
1894	5,654		20,000.99						
1898	4,416		5,870.78						
1901	2,941	1.79	6,584.64						Old blocks.
1902	6,060	1.72	13,070.24						
	1,530								
1902	6,616	1.77	14,547.19						
1897	1,332	1.56	3,317.00		0	0	0	0	
1896	1,556	1.63	3,760.00		0	0	0	0	
1891	1,766	2.25	5,210.00		0	0	0	0	
1892	5,256	2.00	16,845.00		0	0	0	\$0.0033	
1895	5,146	1.68	13,990.00		0	0	0	0	
	5,300								
	6,800				0	0	0	.0018	Private expense.
	48,700								
1899	2,713	1.76	6,718.00						
	4,500								
1902	2,000				2,875.57				
1901	3,205								
	11,000								
1895	1,667	1.78	3,024.00						
1891	2,547	2.25	8,456.00						
{ 1893	4,808	{ 2.25	16,737.00		0	0	0	0	Resurfaced between Fifteenth and Sixteenth.
{ 1894									
1891	3,310	2.25	12,762.00	1902		.002		0	
{ 1896	6543	1.83	10,742.00		0	0	0	0	4-inch base.
1895	5,700	1.63	8,232.00		0	0	0	0	Do.
1894	4,226	1.94	11,415.00		0	0	0	0	
	2,371	1.93							
	5,333								
1900	1,957	1.77	4,818.00		0	0	0	0	
1894	2,128	1.53	10,891.00		0	0	0	0	
1894	2,415	1.68							
1895	3,849	1.78	8,625.00						
1898	1,177	1.77	3,335.00						
	4,000								
	1,866				0	0	0	.0125	
1900	443	1.69	1,459.00		0	0	0	0	
{ 1895	397	1.94	19,998.00		0	0	0	0	4-inch hydraulic base.
{ 1895									
	8,327	2.19							
	7,200								
1889	1,926	.75	3,305.00						
1888	16,894		12,383.00						
1897	1,850	1.56	4,363.00		0	0	0	0	
	5,000								
	2,500								
1881	2,500								
	3,836	2.31	11,769.00						
	4,156								
1872	6,536	3.20	20,917.00		1880	\$1.175	.0006		.0015
					1882	1.14			
					1894	.25			

a Eight-inch base.

TABLE D.—*Descriptive list of street pavements and suburban roadways,*

Street.	From	To	Kind of pavement or roadway.
Vermont avenue	M	P	Coal tar.
Do.	P	R	Asphalt, H. B.
Do.	R	T	Macadam.
Do.	T	Intersection of N.	Asphalt, B. B.
Do.	T	Florida avenue	Gravel.
W, NW	Twelfth	Thirteenth	Asphalt, H. B.
Do.	Thirteenth	Fifteenth	do
Wallach	T and U	Thirteenth and Fourteenth.	Asphalt block.
Ward place	M and N	New Haven and Twenty-second.	Asphalt, B. B.
Washington	G and H	Fourth and Fifth.	do
Do.	Nichols avenue	Taylor	Gravel.
Water	Seventh	Twelfth	Granite.
Do.	N	O	do
Do.	M	Sixth	do
Water (south side)		P, westward.	Vitrified block.
Water.	Twelfth	Thirteen-and-a-half	Granite.
Welling	Fourteenth	University place	Asphalt, H. B.
Whitney avenue	do	Brightwood avenue	Macadam.
Do.	Brightwood a	venue, eastward.	do
Willard	T and U	Seventeenth and Eighteenth.	Gravel.
Westminster	S and T	Ninth and Tenth.	Asphalt, B. B.
Wyoming	Eighteenth	Columbia road	do
Do.		Columbia road, westward.	do
One-half, SE.	I	N	Macadam.
One-half, SW	G	do	do
First, NW		Maryland avenue	Asphalt, H. B.
Do.		Pennsylvania avenue	Granite.
Do.	B	F	Asphalt block.
Do.	do	C	Vitrified block.
Do.	Massachusetts avenue	H	do.
Do.	H	Defrees	Asphalt.
Do.	Defrees	I	Granite.
Do.	I	K	Asphalt, B. B.
Do.	K	Pierce	Asphalt, H. B.
Do.	Pierce	New York avenue.	do.
Do.	New York avenue	O	Asphalt.
Do.	O	P	Granite.
Do.	P	Q	Asphalt, B. B.
Do.	Q	Florida avenue	Asphalt, H. B.
Do.	Florida avenue	S	do.
Do.	S	W	do.
Do.	W	Michigan avenue.	do.
First, E	B, North.	B, South.	do.
First, NE	B	C	Asphalt, H. B.
Do.	C	F	Asphalt, B. B.
Do.	F	L	Gravel.
Do.	Q	R	Asphalt, H. B.
Do.	R	Alley	do.
First, SE	B	C	Granite.
Do.	C	D	Asphalt block.
Do.	D	E	Asphalt, H. B.
Do.	E	G	Asphalt block.
Do.	G	River	Gravel.
First, SW	Maryland avenue	Virginia avenue	Trap.
Do.	Maryland avenue	M	do.

with repairs to asphalt pavements to July 1, 1902—Continued.

Year laid.	Square yards.	Price per square yard.	Original cost.	Resurfaced.		Repairs—average annual cost per square yard.			Remarks.
				Year.	Cost per square yard.	Prior to resurfacing.	Since resurfacing.	Current year.	
1873	6,150	\$3.20	\$19,679.00	1893	\$1.34	\$0.026	\$0.014	\$0.002	
1881	6,103	2.00	16,374.00			.039		.004	
1885	4,854	.40	5,951.00						
1878	338	1.78	602.00		0	0	0	0	
	5,500								
1896	1,358	1.63	3,381.75		0	0	0	0	
1900	4,368	1.80	11,046.00		0	0	0	0	
1886	2,075								
1892	1,505	2.00	4,148.00		0	0	0	0	
1889	2,128	2.00	8,159.00					.152	
	7,000				0	.014	0	0	
1872	16,858		52,260.00						
1876	3,359		11,758.00						
1884	3,526		16,846.00						
1899	2,943		4,055.00						
1880	3,110		*4,826.00						
1892	1,781	2.25	4,483.00		0	0	0	0	
	7,000								
	5,000								
	2,000								
1892	1,749	2.00			0	0	0	0	
	2,566				0	0	0	.039	
	3,900								
1901	6,000								
1901	6,516								
1883	4,540	2.24	10,460.00	{ 1896 }	1.40	.048	.17	.042	{ Resurfacing at Garfield Monument. }
1879	7,280	1.87	15,690.00	{ 1902 }					
1883	475								
1893	577								
1882	1,427	2.39	3,519.00						
1877	700	1.98	1,386.00			.023		.0318	
1882	535	2.41	1,310.00						
1890	1,191	2.00	3,028.00			.009		0	
1894	3,051	1.68	7,457.00		0	0	0	0	
1899	1,731	1.76	4,860.00		0	0	0	0	
1901	2,728	1.79	6,687.00		0	0	0	0	
1896	1,160	1.63	2,152.00		0	0	0	0	
1902	1,748	1.72	4,396.47						
1901	1,077	1.795	2,451.00						
1892	1,898	1.20	3,411.00					.0057	Macadam base.
1895	7,385	1.94	15,577.00		0	0	0	0	
1893	10,432							.003	Four-inch base. Laid by property owners. Originally laid with coal tar in 1873. Relaid with new pavement and asphalt surface in 1897. Includes entrances to Capitol grounds.
1873	8,822			1897					
1881	1,987	1.85	3,736.00			.004		.062	
1891	5,616	2.00	13,995.00			.0005		.001	
	4,500								
1892	2,206	2.25	7,358.00		0	0	0	0	
1892	538	2.25	1,437.00		0	0	0	0	
1880	2,152	1.81	3,935.00						
1889	1,260	2.00	2,631.00						
1895	2,001	1.68	3,960.00			.005			
1900	1,652	1.77	4,351.00						
	10,200								
1874	6,721	3.50	23,524.00						
1876	11,198	3.50	36,194.00						

TABLE D.—*Descriptive list of street pavements and suburban roadways.*

Street.	From—	To—	Kind of pavement or roadway.
First, SW.....	M.....	N.....	Rubble.....
Do.....	N.....	River.....	Gravel.....
Second, NW.....	Pennsylvania avenue.....	Indiana avenue.....	Granite.....
Do.....	Indiana avenue.....	I.....	Asphalt, H. B.....
Second (Le Droit avenue).	Florida avenue.....	W.....	do.....
Second, NE, and SE.....	Pennsylvania avenue.....	Maryland avenue.....	do.....
Second, NE.....	Maryland avenue.....	C.....	Asphalt block.....
Do.....	C.....	F.....	do.....
Do.....	F.....	H.....	Asphalt, B. B.....
Do.....	K.....	L.....	Gravel.....
Do.....	R.....	T.....	Asphalt, B. B.....
Second, SE.....	Pennsylvania avenue.....	D.....	Asphalt, H. B.....
Do.....	D.....	G.....	Macadam.....
Do.....	Virginia avenue.....	I.....	do.....
Do.....	K.....	L.....	do.....
Second, SW.....	Maryland avenue.....	C.....	Asphalt, H. B.....
Do.....	C.....	Virginia avenue.....	Asphalt, B. B.....
Do.....	Virginia avenue.....	F.....	Asphalt, H. B.....
Do.....	F.....	Delaware avenue.....	Macadam.....
Third, NW.....	Pennsylvania avenue.....	D.....	Granite.....
Do.....	Intersection of D.		Asphalt, H. B.....
Do.....	D.....	L.....	Asphalt, B. B.....
Do.....	L.....	New York avenue.....	Asphalt, H. B.....
Do.....	New Jersey avenue.....	P.....	do.....
Do.....	P.....	Q.....	do.....
Do.....	Q.....	R.....	do.....
Do.....	R.....	Florida avenue.....	do.....
Third, NW (Harewood avenue).	Florida avenue.....	Elm.....	Gravel.....
Third, NE.....	East Capitol.....	Maryland avenue.....	Asphalt, H. B.....
Do.....	Maryland avenue.....	C.....	Asphalt block.....
Do.....	C.....	F.....	Asphalt, B. B.....
Do.....	F.....	H.....	Asphalt, H. B.....
Do.....	Quincy.....	R.....	do.....
Do.....	R.....	T.....	Asphalt.....
Third, SE.....	East Capitol.....	Pennsylvania avenue.....	Asphalt, H. B.....
Do.....	Pennsylvania avenue.....	C.....	Asphalt block.....
Do.....	C.....	D.....	Granite.....
Do.....	D.....	Virginia avenue.....	Belgian.....
Do.....	M.....	N.....	Rubble.....
Do.....	Virginia avenue.....	K.....	Granite.....
Do.....	K.....	M.....	Macadam.....
Do.....	Pennsylvania avenue.....	B, South.....	Granite.....
Do.....	B.....	Virginia avenue.....	Asphalt, H. B.....
Do.....	Virginia avenue.....	F.....	do.....
Do.....	F.....	H.....	do.....
Do.....	H.....	I.....	do.....
Do.....	I.....	K.....	do.....
Do.....	K.....	N.....	do.....
Fourth (John Marshall place).	Pennsylvania avenue.....	D.....	Asphalt block.....
Fourth, NW.....	do.....	Missionri avenne.....	Asphalt, H. B.....
Do.....	Indiana avenne.....	New York avenne.....	Coal tar.....
Do.....	New York avenne.....	New Jersey avenne.....	Granite.....
Do.....	New Jersey avenne.....	Florida avenne.....	Asphalt, H. B.....
Fourth (Linden).....	Florida avenne.....	Maple.....	do.....
Fourth, NW.....	Maple.....	College.....	Macadam.....

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with repairs to asphalt pavements to July 1, 1902—Continued.

TABLE D.—*Descriptive list of street pavements and suburban roadways,*

Street.	From—	To—	Kind of pavement or roadway.
Fourth, NE	East Capitol	Maryland avenue	Asphalt block
Do.	Maryland avenue	Massachusetts avenue	do
Do.	Massachusetts avenue	D	do
Do.	D	F	do
Do.	F	H	Gravel
Do.	H	K	Asphalt, H. B.
Do.	K	L	do
Do.	Extension to L.	M	do
Do.	L	M	Gravel
Do.	R	Baltimore and Ohio R. R.	Asphalt, H. B.
Do.	Baltimore and Ohio R. R.	Eckington line	Asphalt
Do.	V	W	do
Do.	Eckington line	Bunker Hill road	Gravel
Fourth, SE	East Capitol	Pennsylvania avenue	Asphalt
Do.	Pennsylvania avenue	North Carolina avenue	Asphalt block
Do.	North Carolina avenue	Virginia avenue	do
Do.	Virginia avenue	N	do
Four-and-a-half, SW	Missouri avenue	Maryland avenue	Asphalt, B. B.
Do.	Maryland avenue	H	Granite
Do.	H	P	do
Fifth, NW	D	G	Asphalt, H. B.
Do.	F	do	do
Do.	do	do	do
Do.	G	New York avenue	Coal tar
Do.	do	do	Asphalt, H. B.
Do.	New York avenue	O	Asphalt, B. B.
Do.	O	Q	do
Do.	Q	Florida avenue	do
Fifth (Larch).	Florida avenue	Maple (T)	do
Do.	Maple	Spruce	do
Fifth, NE	East Capitol	Stanton square	Asphalt block
Do.	Stanton square	D	do
Do.	D	Florida avenue	Gravel
Fifth, SE	East Capitol	Pennsylvania avenue	Asphalt, H. B.
Do.	Crossing square at	Pennsylvania avenue	Asphalt block
Do.	C	E	Asphalt, H. B.
Do.	E	G	Asphalt block
Do.	G	Virginia avenue	do
Sixth, NW	Missouri avenue	Louisiana avenue	Asphalt, H. B.
Do.	Louisiana avenue	E	Asphalt, B. B.
Do.	E	F	Asphalt, H. B.
Do.	F	G	Granite
Do.	G	New York avenue	Coal tar
Do.	New York avenue	Florida avenue	Asphalt, H. B.
Do.	Florida avenue	Spruce	do
Do.	Pomeroy	Lincoln	Gravel
Sixth, NE	East Capitol	Maryland avenue	Asphalt block
Do.	Maryland avenue	Massachusetts avenue	do
Do.	do	D	do
Do.	D	F	Gravel
Do.	F	H	Asphalt, H. B.
Do.	K	Florida avenue	Gravel
Do.	Brentwood road	Eckington line	Asphalt
Sixth, SE	East Capitol	Pennsylvania avenue	Asphalt block
Do.	Pennsylvania avenue	C	do
Do.	C	Virginia avenue	do
Sixth, SW	Missouri avenue	C, south	Rubble
Do.	C	Water	Granite
Six-and-a-half, SW	D	E	Asphalt block
Seventh, NW	B	Pennsylvania avenue	Granite

with repairs to asphalt pavements to July 1, 1892—Continued.

Year laid.	Square yards.	Price per square yard.	Original cost.	Resurfaced.		Repairs—average annual cost per square yard.			Remarks.
				Year.	Cost per square yard.	Prior to resurfacing.	Since resurfacing.	Current year.	
1885	4,526	\$2.10	\$10,228						
1887	1,912	2.00	4,472						
1890	837	2.00	1,972.00						
1901	3,101	1.77	7,277.19						
	3,620								
1894	3,021	1.68	6,120.00		0	0	0	0	
1898	781	1.57	2,455.00		0	0	0	0	
1899	1,067	1.76	2,060.00		0	0	0	0	
	2,400								
1890	861	2.25	2,867.00		0	0	0	\$0.0019	Permit work.
	4,700								
1902	2,026	1.72	5,730.28		0	0	0	.0019	Private expense.
	17,000								
1897	4,152				0	0	0	0	On asphalt block.
1890	593	2.00	1,389.00						
1898	6,684	1.77	15,834.00						
1899	7,706	1.77	18,630.00						
1890	4,833	2.00	18,978.00						
1882	12,851	2.29	30,527.00						
1889	14,566	1.68	48,423.00						
1885	3,341	2.25	11,592.00	{ 1894	\$0.48	.02	\$0.036	.024	
				{ 1895	.38		.011	.018	
1894	380	2.18			0	0	0	0	
1900	200				0	0	0	0	
1873	7,389	3.20	23,644.00	{ 1878	1.71		.017		
				{ 1887	.529		.028	0	
1899	1,795				0	0	0	0	Widening.
1879	5,606	1.46	8,793.00				.024		.025
1889	3,123	2.00	7,764.00				.021		.1113
1889	4,436	2.00	11,654.00				.02		.0042
1890	1,516	2.00	4,334.00				.008		
1891	734	2.00	1,878.00		0	0	0	0	
1886	4,876	2.10	12,131.00						
1890	875	2.00	2,060.00						
	12,500								
1882	4,916	2.27	11,493.00				.027		.16
1890	693	2.00	1,675.00						
1894	2,570	1.93	5,679.00		0	0	0	0	4-inch base.
1899	1,851	1.77	4,954.00		0	0	0	0	
1902	2,197								
1885	5,078	2.25	14,037.00	{ 1900	1.45	.034		0	
				{ 1900	1.06				
1877	2,987	1.98	5,915.00	{ 1882	.80	.011	.033		
				{ 1900	1.06		0	0	
1878	1,313	1.78	2,337.00	1889	2.10	.025	.014	.037	
1880	975	1.71	1,665.00						
1887	6,896	1.97	17,992.00	{ 1899	1.01	.047	.12		
				{ 1901	.92				
1880	16,636	1.85	31,645.00						
1899	907	1.76	2,402.00						
	7,000								
1886	4,626	2.10	10,800.00						
1887	1,998	2.00	4,699.00						
1891	838	2.00	1,975.00						
	3,000								
1900	3,640	1.80	10,045.00		0	0	0	0	
	4,100								
	4,000								
1886	5,949	2.10	13,787.00						
1887	4,399	1.99	10,430.00						
1889	4,775	2.00	12,151.00						
	8,940								
1873	23,179	3.45	79,768.00						
1898	1,477	1.77	4,409.00						
1878	1,555	1.70	2,643.00						

TABLE D.—*Descriptive list of street pavements and suburban roadways.*

Street.	From—	To—	Kind of pavement or roadway.
Seventh, NW, westside	Market space.....	D.....	Granite.....
Seventh, NW	{ Pennsylvania avenue..... (East side. Market space to D.)	D.....	Coal tar.....
Do.....		D to E and G to Q.....	Granite.....
Do.....		Intersections G, H, and I.....	do.....
Do.....	E.....	G.....	Asphalt, H. B.....
Seventh, NW, (westside)	Q.....	Florida avenue.....	Granite.....
Seventh, NW	Q.....	do.....	do.....
Seventh, NE	East Capitol.....	Massachusetts avenue.....	Asphalt block.....
Do.....	Massachusetts avenue.....	Maylind avenue.....	do.....
Do.....	Maryland avenue.....	Florida avenue.....	Gravel.....
Seventh, SE	East Capitol.....	Pennsylvania avenue.....	Asphalt block.....
Do.....	Pennsylvania avenue.....	Virginia avenue.....	do.....
Do.....	Virginia avenue.....	M.....	Macadam.....
Seventh, SW	B, N.....	B, S.....	Trap.....
Do.....	B, S.....	Water.....	Granite.....
Eighth, NW	Pennsylvania avenue.....	E.....	do.....
Do.....	E.....	F.....	Concrete.....
Do.....	G.....	L.....	Asphalt, H. B.....
Do.....	L.....	N.....	Asphalt, B. B.....
Do.....	N.....	R.....	Asphalt, H. B.....
Do.....	R.....	S.....	Coal tar.....
Do.....	S.....	Florida avenue.....	do.....
Do.....	Florida avenue.....	Grant avenue.....	Macadam.....
Eighth, NE	East Capitol.....	Massachusetts avenue.....	Asphalt block.....
Do.....	Massachusetts avenue.....	Maryland avenue.....	do.....
Do.....	Maryland avenue.....	I.....	Gravel.....
Do.....	I.....	K.....	Macadam.....
Do.....	L.....	Florida avenue.....	do.....
Eighth, SE	East Capitol.....	North Carolina avenue.....	Asphalt, H. B.....
Do.....	North Carolina avenue.....	Pennsylvania avenue.....	Asphalt.....
Do.....	Pennsylvania avenue.....	K.....	Asphalt, H. B.....
Do.....	K.....	M.....	do.....
Eighth, SW	B.....	Intersection of M.....	do.....
Do.....	C.....	C.....	Asphalt.....
Do.....	E.....	H.....	Asphalt, H. B.....
Do.....	H.....	Water.....	do.....
Ninth, NW	B.....	Pennsylvania avenue.....	Gravel.....
Do.....	Pennsylvania avenue	F.....	Granite.....
Do.....			Asphalt, H. B.....
Do.....	F.....	P.....	Coal tar.....
Ninth, NW, (east side)	P.....	Rhode Island avenue.....	Asphalt, H. B.....
Ninth, NW, (west side)	P.....	Florida avenue.....	do.....
Ninth, NW, (east side)	Rhode Island avenue.....	do.....	do.....
Ninth, NW	Florida avenue.....	Grant avenue.....	Macadam.....
Ninth, NE	East Capitol.....	Massachusetts avenue.....	Asphalt, H. B.....
Do.....	Massachusetts avenue.....	Maryland avenue.....	Asphalt block.....
Do.....	Maryland avenue.....	H.....	Asphalt.....
Do.....	H.....	I.....	Gravel.....
Do.....	G.....	Florida avenue.....	Macadam.....
Ninth, SE	East Capitol.....	A.....	Asphalt block.....
Do.....	A.....	Pennsylvania avenue.....	Macadam.....
Do.....	Pennsylvania avenue.....	E.....	Asphalt, H. B.....
Do.....	South Carolina avenue.....	Pennsylvania avenue.....	Asphalt block.....
Do.....	I.....	K.....	Gravel.....
Do.....	K.....	M.....	Macadam.....

with repairs to asphalt pavements to July 1, 1902—Continued.

TABLE D.—*Descriptive list of street pavements and suburban roadways.*

Street.	From—	To—	Kind of pavement or roadway.
Ninth, SW.....	B.....	C.....	Asphalt.....
Do.....	C.....	Water.....	Granite.....
Tenth, NW.....	B.....	Pennsylvania avenue.....	Asphalt, H. B.....
Do.....	D.....	E.....	Asphalt, H. B.....
Do.....	E.....	F.....	do.....
Do.....	F.....	G.....	do.....
Do.....	G.....	K.....	Coaltar.....
Do.....	K.....	M.....	Asphalt, H. B.....
Do.....	M.....	O.....	do.....
Do.....	O.....	R.....	do.....
Do.....	R.....	S.....	Coal tar.....
Do.....	S.....	T.....	Asphalt, H. B.....
Do.....	T.....	U.....	do.....
Do.....	U.....	Florida avenue.....	do.....
Tenth, NE.....	East Capitol.....	C.....	Asphalt block.....
Do.....	C.....	Maryland avenue.....	Gravel.....
Do.....	Maryland avenue.....	G.....	Asphalt, H. B.....
Do.....	G.....	H.....	do.....
Do.....	H.....	I.....	Gravel.....
Tenth, SE.....	East Capitol.....	D.....	Macadam.....
Do.....	D.....	Pennsylvania avenue.....	Asphalt block.....
Do.....	Pennsylvania avenue.....	I.....	do.....
Do.....	do.....	L.....	do.....
Do.....	K.....	M.....	Macadam.....
Tenth, SW.....	B.....	Maryland avenue.....	Asphalt block.....
Do.....	D.....	Water.....	Cobble.....
Eleventh, NW.....	B.....	D.....	Asphalt, H. B.....
Do.....	D.....	E.....	do.....
Do.....	E.....	F.....	Granite.....
Do.....	F.....	G.....	do.....
Do.....	G.....	K.....	Coal tar.....
Do.....	K.....	O.....	Granite.....
Do.....	O.....	Florida avenue.....	Asphalt, H. B.....
Eleventh, NE.....	East Capitol.....	Massachusetts avenue.....	Asphalt block.....
Do.....	C.....	C.....	do.....
Do.....	Maryland avenue.....	Maryland avenue.....	Gravel.....
Eleventh, SE.....	East Capitol.....	Florida avenue.....	Macadam.....
Do.....	C.....	C.....	Asphalt block.....
Do.....	Pennsylvania avenue.....	Pennsylvania avenue.....	do.....
Eleventh, SE. (west side).	M.....	Eastern Branch.....	Granite.....
Eleventh, SW.....	B, south.....	Water.....	Belgian.....
Twelfth, NW.....	C.....	D.....	Asphalt, H. B.....
Do.....	Pennsylvania avenue.....	E.....	do.....
Do.....	E.....	F.....	Granite.....
Do.....	F.....	N.....	Coal tar.....
Do.....		Intersection of G.....	Asphalt, H. B.....
Do.....	N.....	O.....	do.....
Do.....	O.....	Rhode Island avenue.....	do.....
Do.....	Rhode Island avenue.....	Vermont avenue.....	Coal tar.....
Do.....	R.....	S.....	do.....
Do.....	S.....	V.....	Asphalt, B. B.....
Do.....	V.....	Florida avenue.....	Asphalt, H. B.....
Twelfth, NE.....	Lincoln square northward. Extension to 144 feet south of B.		do.....
Do.....	C.....	Maryland avenue.....	Macadam.....
Do.....	Maryland avenue.....	H.....	do.....
Do.....	H.....	Florida avenue.....	do.....
Do.....	Florida avenue.....	Mount Olivet road.....	do.....
Do.....	Detroit.....	Bunker Hill road.....	Gravel.....

with repairs to asphalt pavements to July 1, 1902—Continued.

Year laid.	Square yards.	Price per square yard	Original cost.	Resurfaced.		Repairs—average annual cost per square yard.			Remarks.
				Year.	Cost per square yard.	Prior to resurfacing.	Since resurfacing.	Current year.	
1889	1,454	\$1.20	\$2,879.00			\$0.003		0	Cobble base.
1883	7,061		22,859.00						
1872	3,103	3.20	9,927.00						
1898	2,487	1.75							
			12,256.00						
1898	2,000	1.75							
1880	955	1.74	1,775.00			.049		\$0.037	
1875	4,828	3.00	14,913.00	{ 1889	\$1.26	.014	\$0.037		
				{ 1891	.43				
1880	3,368	1.47	5,074.00				.016	.043	
1881	3,443	1.85	6,519.00				.017	.013	
1883	4,433	2.28	10,109.00				.009	.034	
1887	1,992	1.98	6,640.00	1901	1.00	.068		.044	
1891	1,948	2.25	6,344.00		0	0	0	0	
1895	2,588	1.68	6,075.00		0	0	0	0	
1900	4,683	1.80	12,291.00		0	0	0	0	
1897	4,208	1.77	10,972.00						
			2,670						
1893	2,915	1.93			0	0	0	0	
1892	2,061	2.00			0	0	0	0	
	2,160								
1890	4,748	.93	8,085.00						
1891	788	2.00	2,489.00						
1896	4,478	1.84	11,449.00						
1897	449	1.80	1,017.00						
1901	1,500								
1886	2,411	2.10	5,544.00						
1873	2,589	.70	1,812.00						
1897	3,854	1.45	8,408.00		0	0	0	0	
1878	2,500	1.78	4,451.00	1891	1.736	.032	.012	.214	
1879	1,734	2.11	3,659.00						
1880	1,214	1.89	2,321.00						
1875	3,866	3.00	12,813.00	1898	.59	.045	.067	.015	
1890	4,326	1.73	8,104.00						
1891	8,734	2.25	37,118.00			.002		.024	
1895	1,093	1.84	2,500.00						
1900	4,202	1.77	9,412.00						
			2,300						
1895	6,951	.68	5,642.00						
1891	8,076	2.00	23,776.00						
1893	7,006	2.00	19,523.00						
1889	15,451	.91	53,724.00						
1882	4,698	2.70	11,791.00						
1873	10,511	3.45	36,393.00						
1897	1,911	1.35	4,366.00		0	0	0	0	
1878	1,292	1.78	2,316.00	1886	.946	.02	.068	.055	
1879	1,627	2.11	3,434.00						
1875	13,039	3.00	40,517.00	{ 1889	.117	.005	.04		
				{ 1894	.845		.023	.021	
1881	198	2.04	407.00		0	0	0	0	
1881	1,522	1.85	2,873.00			.041		0	
1883	1,859	2.27	4,240.00			.035		.114	
1887	2,304	1.98	8,120.00			.048		.124	
1888	1,798	2.00	8,177.00			.004		.031	
1890	5,377	2.00	18,873.00			.006		0	
1891	3,554	2.25	12,542.00		0	0	0	.018	
1895	580	1.68	1,024.00		0	0	0	0	
1898	1,737	1.76	3,830.00		0	0	0	0	
1901	4,770								
1890	4,374	.96	4,450.00						
1890	3,543		6,188.00						
1898	10,544	.91	10,817.00						
1894	13,758	.20	7,333.00						

TABLE D.—*Descriptive list of street pavements and suburban roadways,*

Street.	From—	To—	Kind of pavement or roadway.
Twelfth, SE	East Capitol	Pennsylvania avenue	Gravel
Twelfth, SW	Pennsylvania avenue to	Ohio avenue and B to river	Belgian
Do.	B, N	B, S	do
Thirteenth, NW	B	C	Asphalt, H. B.
Do.	C	Pennsylvania avenue	Coal tar
Do.	Pennsylvania avenue	E	Asphalt, H. B.
Do.	E	F	Granite
Do.	F	P	Coal tar
Do.	P	Around Iowa circle, Corcoran	do
Do.	Corcoran	T	Asphalt, H. B.
Do.	T	Florida avenue	do
Do.	Florida avenue	Clifton	do
Do.	Clifton	Whitney avenue	Macadam
Do.	Whitney avenue	Spring road	do
Thirteenth, NE	Emerson	Maryland avenue	Asphalt, B. B.
Thirteenth, SE	East Capitol	D	Gravel
Do.	D	Pennsylvania avenue	Macadam
Thirteenth, SW	B	Maryland avenue	Coal tar
Thirteen-and-a-half, NW	do	E	Cobble
Thirteen-and-a-half, SW	do	D	Asphalt block
Fourteenth, NW	Pennsylvania avenue	F	Coal tar
Do.	F	New York avenue	Granite
Do.	New York avenue	H	Coal tar
Fourteenth, NW, (east side).	H	Florida avenue	Asphalt, H. B.
Fourteenth, NW, (west side).	H	M	do
Do.	M	Florida avenue	do
Fourteenth, NW, (east side).	Florida avenue	Clifton	do
Do.	Clifton	Roanoke	do
Fourteenth, NW, (west side).	Florida avenue	Euclid	do
Fourteenth, NW		Yale, northward.	do
Do.		Extension to park.	do
Fourteenth, NW, (east side).	Kenyon	Park	do
Fourteenth Street road			
Fourteenth, NE	East Capitol	E	Gravel
Do.	Maryland avenue	E	Macadam
Fourteenth, SE	East Capitol	Pennsylvania avenue	Gravel
Fourteenth, SW	B, north	B, south	Belgian
Do.	B, south	Alley south of B	Asphalt, H. B.
Do.	Alley south of B	Maryland avenue	Granite
Fifteenth, NW	B	E	Asphalt
Do.	E	Pennsylvania avenue	Asphalt, H. B.
Do.	Pennsylvania avenue	New York avenue	do
Do.	New York avenue	Vermont avenue	Coal tar
Do.	I	K	do
Do.	K	Rhode Island avenue	Asphalt, H. B.
Do.	Rhode Island avenue	S	Coal tar
Do.	S	U	Asphalt, H. B.
Do.	U	V	do

with repairs to asphalt pavements to July 1, 1902—Continued.

Year laid.	Square yards.	Price per square yard.	Original cost.	Resurfaced.		Repairs—average annual cost per square yard.			Remarks.
				Year.	Cost per square yard.	Prior to resurfacing.	Since resurfacing.	Current year.	
1895	11,305	\$0.59	\$6,979.00						
1872	10,708	3.00	37,858.00						
1872	8,187	3.50	28,655.00						
1878	1,760	1.78	3,132.00	1893	\$1.321	\$0.073	\$0.105	\$0.04	
1875	3,037	3.00	9,803.00	1887	1.49	.018	.032	.031	
1878	685	1.79	1,226.00			.057		.10	
1878	1,741	2.11	3,708.00						
1873	15,682	3.20	50,758.00	1888	.28	.047			
				1889	.381		.018	.016	
1873	8,838	3.20	28,382.00	1885	1.75	.009	.006	.028	
1881	2,126	2.09	4,889.00			.037		.059	
1884	4,273	2.25	10,558.00			.041		.037	
1891	7,271	2.25	20,372.00		0	0	0	.0035	
	2,700								
{ 1896	14,000								
		5,800							
1892	1,725	2.00	4,401.00		0	0	0	0	
1896	11,013	.12	6,194.00						
1891	2,638	.95	5,255.00						
1875	5,706	3.60	17,117.00	1891	1.27	.021	.032	.002	
	3,300								
1895	3,016	1.84	6,635.00						East side laid by railway company.
1887	8,852	1.97	22,512.00	1894	.464	.049	.021	.034	
1884	1,734	2.39	8,444.00						
1873	3,732	3.20	11,942.00	1884	1.546	0.008	.053	.055	
1874	1,549	3.20	4,957.00	1885		.022	.023	.012	
				1895					
1879	29,085	1.97	60,212.00	1891	.603	.03	.064		
				1893	.841				
1879	5,682	1.75	10,287.00	1894	.022		.015	.004	
1882	14,583	2.26	33,717.00	1901	.618	.031		.021	4-inch base.
1889	3,764	2.00			0	0	0	.0068	
1898	879	1.77			0	0	0	0	In place of 4-inch base.
1900	2,723	1.77			0	0	0	0	Do.
1891	3,725	2.25			0	0	0		
1892	4,307	2.25					.007	.0116	
1894	486	1.68			0	0	0	0	
	6,600								
	3,000								
	12,600								
1873	7,841	3.50	27,443.00						
1899	931	1.47	2,623.00		0	0	0	0	In place of granite.
1893	5,653	1.40							
1894	5,252	1.03	7,643.00						
1893	1,792								
1889	4,219	2.35	13,410.00	1879	.967	.042		.019	On asphalt block.
1873	7,005	3.20	22,416.00						In place of asphalt block.
1873	1,724	3.00	5,518.00	1891	1.39		.016	.035	8-inch base.
1881	6,921	1.85	12,997.00	1887	.755	.018		.006	
1875	7,516	3.00	22,548.00	1891	.65	.012	.07	.0037	
1885	3,768	2.25	9,468.00				.007	.01	
1895	1,486	1.68	3,689.00		0	0	0	.018	

TABLE D.—*Descriptive list of street pavements and suburban roadways.*

Street.	From—	To—	Kind of pavement or roadway.
Fifteenth, NE	East Capitol	E	Gravel
Do	E	H	Asphalt
Fifteenth, SE	East Capitol	Pennsylvania avenue	Gravel
Fifteen-and-a-half, NW. (Madison place)	Pennsylvania avenue	H	Coal tar
Sixteenth, NW	H	Scott square	Asphalt, H. B.
Do	Scott square	R	do
Do	R	150 feet south of Florida avenue	do
Do	150 feet south of Florida avenue	Morris	do
Do	Morris	Superior	Macadam
Do	Kenesaw	Park	do
Sixteen-and-a-half, NW. (Jackson place)	Pennsylvania avenue	H	Coal tar
Seventeenth, NW	B	E	do
Do	E	New York avenue	Asphalt, H. B.
Do	New York avenue	Pennsylvania avenue	Asphalt, B. B.
Do	Pennsylvania avenue	I	Coal tar
Do	I	Massachusetts avenue	do
Do	Massachusetts avenue	P	do
Do	P	Q	do
Do	Q	R	Asp ^l alt, B. B.
Do	R	T	do
Do	T	Florida avenue	Asphalt
Do	Grant	Lowell	Macadam
Eighteenth, NW	Virginia avenue	D	do
Do	E	New York avenue	Coal tar
Do	E	Pennsylvania avenue	Asphalt, H. B.
Do	Pennsylvania avenue	K	Coal tar
Do	K	L	Asphalt block
Do	L	P	Coal tar
Do	P	Q	Asphalt, H. B.
Do	New Hampshire avenue	S	do
Do	S	Florida avenue	do
Do	Florida avenue	Columbia road	Asphalt, B. B.
Do	do	(Fourth)	Asphalt, H. B.
Do	Grant	(Sixth)	do
Nineteenth, NW	Virginia avenue	Howard	Macadam
Do	E	E	do
Do	Pennsylvania avenue	K	Coal tar
Do	K	M	Granite
Do	M	N	do
Do	N	Circle	do
Do	P	Florida avenue	Asphalt, H. B.
Do	Florida avenue	Columbia road	Asphalt, H. B.
Do	Baltimore	Cincinnati	do
Twentieth, NW	Virginia avenue	E	Macadam
Do	E	Pennsylvania avenue	Coal tar
Do	Pennsylvania avenue	I	Asphalt, H. B.
Do	I	K	Granite
Do	K	P	do
Do	P	Connecticut avenue	do
Do	R	S	Asphalt

with repairs to asphalt pavements to July 1, 1902—Continued.

Year laid.	Square yards.	Price per square yard.	Original cost.	Resurfaced.		Repairs—average annual cost per square yard.			Remarks.
				Year.	Cost per square yard.	Prior to resurfacing.	Since resurfacing.	Current year.	
1895	10,553	\$0.59	\$5,721.00						
1902	5,130	1.72	12,579.29						
1893	14,690	.499	9,328.00						
1872	2,974	3.20	9,515.00	1880	\$0.42	0	\$0.031	\$0.0054	
1881	12,450	2.00	27,336.00			\$0.018		.052	
1882	10,818	2.26	25,026.00			.031		.046	
1883	12,525					.035		.036	
1899	7,194	1.76	17,408.00		0	0	0	0	
1895	1,000								
	4,700								
1872	2,314	3.20	7,406.00	1880	.94		.011	0	
1872	6,713	3.20	21,482.00			.036		.002	
1897	2,573	2.18	6,222.00		0	0	0	0	
1889	4,847					.021		.009	
1873	4,958	3.20	15,806.00	1902		.021		.006	Resurfaced, H to L.
1873	10,603	3.20	33,929.00	1878	1.38		.021		
				1894	.84		.011	.007	
1875	2,095	3.00	6,285.00	1894		.047	0	.026	
1887	1,765	1.98	5,552.00					.016	
1889	1,874	2.00	6,154.00	1898	2.45	.037		.065	
1889	2,946	2.00	10,490.00			.021		.063	
1902	4,086	1.72	10,003.92						
	1,100								
1901	2,220								
1873	1,095	3.20	3,506.00	1878	1.02		.024	.032	
1881	4,895	2.05	10,466.00			.021		.036	
1872	4,515	3.20	14,448.00	1880	1.15		.024	.075	
1886	1,431	2.10	3,286.00						
1873	7,584	3.20	24,269.00	1878	1.54		.018		
				1881	.466		.032		
				1895	.29		.199		
				1897	1.08		.018	.0041	
1898	1,764		4,600.00						
1891	3,130	2.25	10,796.00		0	0	0	.0024	In place of bituminous base.
1892	3,823	2.25	12,333.00		0	0	0	0	
1891	3,206	2.00	6,413.00			.021		.037	
1894	4,406	1.53			0	0	0	0	
1894	227	1.68	9,514.00						
1901	3,000								
1901	3,154								
1873	6,421	3.20	20,547.00	1878	1.59		.011	.052	
1880	3,170	1.94	6,709.00						
1885	3,726	2.394	8,915.00						
1882	1,894	2.58	4,949.00						
1881	2,400	2.06	5,198.00			.021		.054	
1873	7,598	3.20	24,314.00	1878	1.20		.01		
				1891			.027		
				1895			.016	0	
1900	5,274			1902	0	0	0	0	
1900	1,066				0	0	0	0	
1901	2,433								
1873	5,579	3.20	17,853.00	1878	1.55		.019		
				1899	1.43		.077	.028	
1879	981	1.46	1,486.00			.022		0	
1879	1,349	1.92	2,707.00						
1873	8,201	3.20	24,243.00	1880	.783	.015	.058		
				1894	.242				
				1896	.332		.054	.0009	
1873	2,167	3.20	6,934.00	1878	1.385		.053	0	
1889	1,995	1.20	5,607.00	1896	.284	0	0	0	Cobble base.

TABLE D.—*Descriptive list of street pavements and suburban roadways,*

Street.	From—	To—	Kind of pavement or roadway.
Twentieth, NW	S.	Florida avenue	Cobble.
Do.	Baltimore	Cincinnati	Asphalt block.
Twenty-first, NW	E.	Virginia avenue	Macadam.
Do.	E.	Pennsylvania avenue	Coal tar.
Do.	Pennsylvania avenue	K.	Granite.
Do.	K.	Massachusetts avenue	Coal tar.
Do.	Q.	Hillyer place	Asphalt block.
Do.	R.	R.	Coal tar.
Do.	R.	Florida avenue	Asphalt, B. B.
Twenty-second, NW	New York avenue	Virginia avenue	Macadam.
Do.	Virginia avenue	F.	Asphalt, H. B.
Do.	F.	G.	Asphalt.
Do.	G.	Pennsylvania avenue	Coal tar.
Do.	K.	M.	Asphalt, H. B.
Do.	M.	O.	Asphalt, B. B.
Do.	O.	P.	do.
Do.	P.	Massachusetts avenue	Asphalt, H. B.
Do.	Massachusetts avenue	R.	do.
Do.	Cincinnati	Frankfort	Macadam.
Twenty-third, NW	Virginia avenue	E.	Asphalt, H. B.
Do.	F.	G.	Cobble.
Do.	G.	I.	Asphalt.
Do.	I.	Pennsylvania avenue	do.
Do.	K.	L.	Asphalt block.
Do.	L.	M.	Asphalt, H. B.
Twenty-fourth, NW	G.	Pennsylvania avenue	Cobble.
Do.	Pennsylvania avenue	M.	Asphalt, H. B.
Do.	Emporia	Frankfort	Macadam.
Twenty-fifth, NW	H.	K.	Asphalt, H. B.
Do.	K.	Pennsylvania avenue	Asphalt, B. B.
Do.	Pennsylvania avenue	M.	do.
Twenty-sixth, NW	G.	K.	Cobble.
Do.	K.	Pennsylvania avenue	Granite.
Do.	Pennsylvania avenue	M.	Coal tar.
Twenty-seventh, NW	M.	P.	Macadam.
Twenty-eighth, NW	M.	Dumbarton	Asphalt.
Do.	Dumbarton	P.	Asphalt, B. B.
Do.	P.	Q.	Macadam.
Do.	Q.	U.	Cobble.
Twenty-ninth, NW	K.	M.	do.
Do.	M.	N.	Granite.
Do.	N.	P.	Asphalt.
Do.	P.	Q.	Asphalt, B. B.
Do.	Q.	U.	Macadam.
Thirtieth, NW	Virginia avenue	K.	Asphalt, H. B.
Do.	K.	Chesapeake and Ohio Canal.	Cobble.
Do.	Chesapeake and Ohio Canal.	M.	Asphalt, H. B.
Do.	M.	N.	Granite.
Do.	N.	P.	Asphalt, H. B.
Do.	P.	Q.	Asphalt, B. B.
Do.	Q.	U.	Granite.
Thirty-first, NW	K.	M.	Coal tar.
Do.	M.	N.	Granite.
Do.	N.	P.	Asphalt.
Do.	P.	U.	(Asphalt, H. B.
Thirty-second, NW	K.	M.	Granite.
Do.	M.	P.	Cobble.
Do.	M.	N.	Granite.
Do.	P.	V.	do.
Do.	V.	Thirty-fourth	Asphalt block.
			Cobble.

with repairs to asphalt pavements to July 1, 1902—Continued.

Year laid.	Square yards.	Price per square yard.	Original cost.	Resurfaced.		Repairs—average annual cost per square yard.			Remarks.
				Year.	Cost per square yard.	Prior to resurfacing.	Since resurfacing.	Current year.	
1872	900	\$0.70	\$630.00						
1901	845	1.77							
1901	1,460								Permit work.
1873	6,101	3.20	19,524.00	{ 1878	\$1.57		\$0.022		
				{ 1899	1.57		.031	\$0.004	
1879	1,395	1.92	2,816.00						
1875	10,892	3.20	34,854.00	1891	1.21	\$0.019		.0046	
1884	956			1902					
1887	988	1.98	2,708.00			.052		.019	
1890	1,483	2.00	5,190.00			.008		.005	
1901	3,572								
1899	884	1.76	2,215.00		0	0	0	0	
1892	1,406	1.20	3,532.00		0	0	0	0	Cobble base.
1873	4,641	3.20	14,851.00	{ 1894	.907	.02	.05	0	
				{ 1900			0	0	
1885	2,852	2.25	6,720.00			.015		.015	
1890	3,894	2.00				.005		.07	
1889	1,586	2.00	4,862.00			.014		.066	
1896	2,668	1.94	6,483.00		0	0	0	0	4-inch base.
1896	2,128	1.94	4,500.00		0	0	0	0	Do.
1901	4,050								
1900	1,814	1.78	4,206.00		0	0	0	0	
1874	1,103	.70	3,635.00						
1902	2,539	1.72	7,126.74						
1890	1,425	1.20	3,347.00		0	0	0	0	
1886	587	2.10	1,355.00						
1901	1,800	1.77	4,309.00		0	0	0	0	Cobble base. In place of asphalt block.
1874	5,192	.70	3,635.00						
1900	2,456	1.78	6,418.00		0	0	0	0	
1901	1,200								
1898	3,739	1.54	9,129.00		0	0	0	0	
1890	1,163	2.00	4,146.00		0	.008	0	.036	
1890	1,603	2.00	5,972.00		0	.006	0	.012	
1874	5,042	.70	3,529.00						
1882	1,680	2.48	4,206.00						
1877	919	2.67	2,454.00			.023		.018	
1898	4,100		5,887.00						
1894	2,879	1.10							
1894	1,551	1.96	11,260.00		0	0	0	0	Cobble base. 4-inch base.
1890	1,474		3,737.00		0	0	0	0	
1874	2,350								
1882	2,919		1,080.00						
1893	1,885	2.46	4,727.00						
1894	2,966				0	0	0	0	On asphalt block.
1890	1,261	2.00	3,381.00		0	0	0	0	
1890	2,300								
1875	1,617	.70	1,132.00						
1879	1,116	1.76	2,651.00		0	0	0	0	
1879	2,121	2.15	4,425.00						
1883	2,932	2.23	7,961.00			.045		.076	
1888	1,282	2.00	3,515.00			.002		.008	
1883	2,746		10,204.00						
1887	1,209	1.98	5,514.00			.011		0	
1880	1,742	1.814	3,562.00						
1893	3,338		4,312.00						
1885	{ 1,862	2.26							Do.
	{ 3,285								
	3,000								
1879	6,202	2.15	13,095.00						
1894	561		2,620.00						
1902	3,315	1.77	8,039.96						
	1,825								

TABLE D.—*Descriptive list of street pavements and suburban*

Street.	From—	To—	Kind of pavement or roadway.
Thirty-second, NW	Thirty-fourth	Thirty-fifth	Macadam
Do.....	Do.....	Tunlaw road	Granite
Thirty-third, NW	K.....	M.....	Cobble
Do.....	M.....	N.....	Asphalt, B. B
Do.....	N.....	P.....	Asphalt, H. B
Do.....	P.....	Thirty-second	Asphalt, B. B
Thirty-fourth, NW	M.....	N.....	Asphalt, B. B
Do.....	N.....	P.....	do
Do.....	P.....	R.....	do
Do.....	R.....	Thirty-second	Macadam
Thirty-fifth, NW	M.....	Prospect	Cobble
Do.....	Prospect	N.....	Asphalt, B. B
Do.....	N.....	P.....	Coal tar
Do.....	P.....	Q.....	do
Do.....	Q.....	U.....	Asphalt, B. B
Do.....	U.....	Tennallytown road	Asphalt, H. B
Thirty-sixth, NW	Prospect	O.....	Asphalt, B. B
Do.....	O.....	P.....	Asphalt, H. B

NOTE.—H. B.=hydraulic base; B. B.=bituminous base.

with repairs to asphalt pavements to July 1, 1902—Continued.

Year laid.	Square yards.	Price per square yard.	Original cost.	Resurfaced.		Repairs—Average annual cost per square yard.			Remarks.
				Year.	Cost per square yard.	Prior to resurfacing.	Since resurfacing.	Current year.	
1883	3,500								
	6,076		\$24,075.00						
1890	1,580	\$2.00	5,800.00	0	0	0	0	0	
1883	2,050	2.27	4,745.00		\$0.075			\$0.08	
1890	4,675	2.00	9,764.00			.0008			
1890	1,630	2.00	4,958.00	0	0	0	0	0	
1891	2,109	2.00	7,927.00	0	0	0	0	0	
1890	2,264	2.00	8,494.00	0	0	0	0	0	
1892	6,570		8,984.00						
	850								
1886	1,017	2.00	3,346.00	0	0	0	0	0	
1887	2,929	1.97	8,164.00		.01			.046	
1887	1,558	1.97	5,305.00	1901	\$1.86	.066		0	
1890	5,749	2.00	18,563.00			.004		.036	
1891	6,009	2.25	18,242.00	0	0	0	0	.042	
1891	2,368	2.00	7,994.00	0	0	0	0	0	
1890	707	1.78	2,063.00	0	0	0	0	0	

TABLE E.—Schedule of work on streets and avenues for year ended June 30, 1902.

NORTHWEST SECTION.

Street.	From—	To—	Kind of pavement.	No. of contract.	Contract work.												Material.						
					Pavement.	Length.	Price per square yard.	Ordinary grading.	Macadam grading.	Hauled over 2,500 feet.	Old cobble removed.	Old curb removed.	Straight curb reset.	Circular curb reset.	Straight curb set.	Circular curb set.	Cement gutters.	Vitrified block gutters.	Vitrified block.	8 by 8 inch straight curb.	6 by 20 inch straight curb.	Circular curb.	Cost mated
First	P	Q	Asphalt	2976	Sq. yds.	Feet.	Cu. yds.	Cu. yds.	Cu. yds.	Sq. yds.	Lin. ft.	Lin. ft.	Lin. ft.	Lin. ft.	Lin. ft.	Sq. yds.	Sq. yds.	Number.	Lin. ft.	Lin. ft.	Lin. ft.	\$81	
O	First	North Capitol	Asphalt	2976	1,464.44	475	81.72	194	240	300	8	94.44	680.59	18.82	28.33	283.85	16,000	685.10	18.84	28.33	18.84	981	
Q	do	do	do	2976	2,730.80	816	1.72	157	752	—	18	159	797.72	28.25	825.39	432.55	19,752	827.44	—	18.84	18.84	1,77	
Twenty-third	Third	Florida avenue	Asphalt	2976	4,374.16	1,410	1.72	446.10	172.80	—	583	412	273.35	1,595.73	18.90	770.56	32,631	1,597.44	—	18.84	18.84	1,77	
Seventeenth	G	do	do	2976	2,190.57	758	1.72	234	—	2,834	1,56	86.71	60.74	43.26	1,523.10	37.23	1,517	1,333.36	43.28	43.28	43.28	981	
Sixth	T	Florida avenue	Asphalt	2976	3,587.68	1,653	1.72	—	768	—	294.80	407.12	1,074.23	271.41	889.52	29.83	498.73	38	1,620	891.87	29.83	29.83	34
Twenty-third	Twenty-fourth	do	do	2976	903.38	205	1.72	501	75	—	93.50	—	221.22	294.27	—	155.80	5,727	—	204.50	—	204.50	—	34

SOUTHWEST SECTION.

Maryland avenue	Third	Four-and-a-half	Asphalt	2976	2,707.11	794	1.72	502	25	587	3,900	22	1,426.96	—	214.94	26.59	416.29	19,427	755.21	31,440	138.16	29.53	45
South Capitol	M	O	do	2976	5,306	1,318	1.72	872	—	—	7,453.24	414	2,176.42	—	414	138.80	—	755.21	31,440	—	138.16	—	34

SOUTHEAST SECTION.

Pennsylvania avenue	Twelfth	Thirteenth	Asphalt	2976	2,192.75	616	1.72	319	480	—	1,426	96.40	17.10	1,036.62	78.70	14.40	156.70	6,725	14.42	47.13	1,72	10	
East Capitol	Thirteenth	Fifteenth	Asphalt	2976	4,783.03	1,760	1.72	1,396	60	—	1,426	96.40	17.10	1,036.62	78.70	14.40	712.81	31,255	708.18	47.13	1,72	24	
Ninth	Tenth	Eleventh	Asphalt	2976	418.11	150	1.72	90	100	—	126.50	404	23.15	407.88	18.97	79.93	3,106	391.64	16.83	23.55	16.83	24	
South Capitol	P	A	Asphalt block	2926	1,218.17	343	1.77	1,212	101	—	100	—	—	—	—	—	—	—	—	—	—	10	
Fifth	G	Virginia avenue	Asphalt	2926	6,615.84	1,400	1.77	535	225.50	—	5,964.50	202	2,299.90	—	235.57	156.18	—	—	—	1,181.29	59.45	161.49	981
Intersection East Capitol and Ninth	do	Asphalt	do	2976	2,197.24	600	1.77	366	200	—	—	—	—	—	—	—	—	—	—	—	1,185.33	60.02	981

NORTHEAST SECTION.

Third	L	Florida avenue	Grading	3014	23,255.92	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Fifteenth	E	H	Asphalt	2976	4,446.76	1,392	1.72	376.50	887.50	—	1,436.80	1,092	930.30	56.96	1,560.91	53.60	—	683.10	29,518	1,397.81	117.74	80.30	1,75
East Capitol	Thirteenth	Fifteenth	Asphalt	2976	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
G	First	Fourth	Asphalt block	2926	4,178.23	1,229	1.77	793	685	600	1,152	2,600	206.59	2,496.25	177.63	—	—	—	—	—	2,452.48	196.12	1,968
Intersection Third and G	do	do	Asphalt	2976	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Intersection Second and G	K	L	Grading	2974	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Delaware avenue	do	do	do	2974	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	

GEORGETOWN SECTION.

Thirty-second	P	V	Asphalt block	2926	3,315.29	—	1.77	195	—	—	—	3,252.40	100.20	2,811.62	32.96	318.39	75.25	—	—	—	—	—
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^a\$8 paid from 1903 appropriation.^b\$48 paid from 1903 appropriation.^cTotal cost of street, \$11,648.74, divided between northeast and southeast sections, as shown.^d\$40 paid from 1903 appropriation.^eAdjustment of old surface at end of asphalt block pavement.^fDetails of whole street shown in southeast section.

TABLE E.—Schedule of work on streets and avenues for year ended June 30, 1902.

NORTHWEST SECTION.

Ind of pavement.	No. of contract.	Pavement.	Length.	Contract work.										Material.										Cost of day labor and extra work.	Amount of contract.	Total cost of street.	Name of contractor.	
				Price per square yard.	Ordinary grading.	Macadam grading.	Hauled over 2,500 feet.	Old cobble removed.	Old curb removed.	Straight curb reset.	Circular curb reset.	Straight curb set.	Circular curb set.	Cement gutters.	Vitrified block gutters.	Vitrified block.	8 by 8 inch straight curb.	6 by 20 inch straight curb.	Circular curb.	Cost of material.	Cost of inspection.	Removing sewer traps, water boxes, trees, lamp posts, etc.						
alt	2076	Sq. yds.	Feet.	Cu. yds.	Cu. yds.	Cu. yds.	Cu. yds.	Sq. yds.	Lin. ft.	Lin. ft.	Lin. ft.	Lin. ft.	Lin. ft.	Sq. yds.	Number.	Lin. ft.	Lin. ft.	Lin. ft.	Cost of material.	Cost of inspection.	Removing sewer traps, water boxes, trees, lamp posts, etc.	\$5.86	\$3,598.72	\$4,396.47	Warner-Quinlan Paving Co.			
alt	2076	1,664.44	455	81.72	191	200	300	191	8	94.44	18.82	283.85	16,000	186.10	18.84	\$813.89	\$38.00	16,000	\$99.40	31.39	6,519.58	7,743.50	Do.					
alt	2076	2,750.80	816	1.72	175	172	252	13	159	797.72	28.25	283.85	19,752	28.33	432.55	19.752	827.44	28.33	997.13	96.00	90.00	7.50	291.81	9,355.08	11,519.09	Do.		
alt	2076	4,374.16	1,410	1.72	445.10	445.10	162.80	583	419	273.35	18.90	270.56	1,505.73	18.90	432.55	32.631	1,597.44	18.84	1,774.70	90.00	72.00	75.00	208.62	5,968.69	7,126.74	Do.		
alt	2076	2,190.57	758	1.72	234	234	234	2,834	1.56	86.71	60.74	1,523.10	43.20	348.18	57.23	1,517	1,322.36	43.28	1,102.43	72.00	601.34	128.00	350.73	4.00	310.32	8,555.53	10,003.92	Do.
alt	2076	3,587.68	1,653	1.72	568	568	568	294.80	46.12	1,064.22	271.41	889.52	29.83	498.73	38	1,620	891.87	29.85	155.80	5,727	294.50	648.00	4.11	2,074.70	2,473.67	Do.		
alt	2076	903.38	285	1.72	501	501	75	93.50	294.27	294.27	294.27	294.27	294.27	5,727	294.50	294.50	294.50	294.50	294.50	294.50	294.50	294.50	294.50	294.50	294.50	294.50	294.50	294.50

SOUTHWEST SECTION.

alt	2076	2,767.11	704	1.72	562	25	587	3,900	22	1,426.96	214.94	26.59	446.20	19.427	19.427	29.53	451.81	148.00	478.93	5.52	6,700.13	7,793.30	Warner-Quinlan Paving Co.
alt	2076	5,305	1,318	1.72	872	25	587	7,459.24	414	2,176.42	414	138.80	31.440	138.16	797.14	284.00	41.00	5.52	11,948.10	13,070.24	Do.		

SOUTHEAST SECTION.

alt	2076	2,192.75	616	1.72	319	480	1,426	36.40	17.10	1,036.62	78.70	702.92	58.20	156.70	6,725	14.42	161.05	46.00	66.08	19.85	4,308.89	4,582.02	Warner-Quinlan Paving Co.		
alt	2076	4,783.03	1,760	1.72	1,306	60	1,426	36.40	17.10	1,036.62	78.70	702.92	58.20	156.70	6,725	14.42	1,213.57	164.00	10,251.32	6,207.04	Do.				
alt	2076	418.11	150	1.72	90	100	100	100	100	100	100	100	100	712.81	31,255	708.18	47.13	24.00	216.49	24.00	180.91	1,142.66	1,696.04	Do.	
alt	2026	1,218.17	343	1.72	1,212	101	100	100	100	100	100	100	100	73.93	3,106	391.64	16.83	23.55	246.49	36.00	2,396.96	2,372.96	Washington Asphalt Block and Tile Co.		
alt	2026	6,615.84	1,400	1.72	535	225.50	5,960.50	202	2,299.90	203.57	156.18	1,181.29	59.45	161.49	352.00	60.75	161.49	49.95	13,923.00	14,547.19	5,592.87	8.50	4,563.71	5,592.87	Cranford Paving Co.
alt	2074	2,197.24	600	1.72	306	200	560	1,222	14.36	1,181.29	59.45	1,181.29	59.45	1,185.33	60.02	937.16	1,185.33	60.02	1,185.33	937.16	1,185.33	1,185.33	1,185.33	1,185.33	1,185.33

NORTHEAST SECTION.

alt	2076	3014	4,446.76	1,392	1.72	23,255.92	376.30	887.30	1,436.80	1,092	930.30	56.96	1,560.91	53.60	683.10	29,518	1,397.81	117.74	89.30	1,756.97	166.00	392.40	228.03	10,035.89	12,579.29	W. F. Brenizer.
alt	2076	4,446.76	1,392	1.72	23,255.92	376.30	887.30	1,436.80	1,092	930.30	56.96	1,560.91	53.60	683.10	29,518	1,397.81	117.74	89.30	1,756.97	166.00	392.40	228.03	10,035.89	12,579.29	W. F. Brenizer.	
alt	2026	4,178.23	1,220	1.72	733	685	600	1,152	2,600	206.59	2,496.25	177.63	2,496.25	177.63	2,472.48	166.12	1,965.76	188.00	414.55	251.52	9,186.89	12,006.72	Warner-Quinlan Paving Co.			
alt	2074	h 298.20	h 298.20	h 298.20	h 298.20	h 298.20	h 298.20	h 298.20	h 298.20	h 298.20	h 298.20	h 298.20	h 298.20	h 298.20	h 298.20	h 298.20	h 298.20	h 298.20	h 298.20	h 298.20	h 298.20	h 298.20	h 298.20	h 298.20	h 298.20	
alt	2026	3,315.29	.....	1.77	195	.....	3,252.40	100.20	2,811.62	32.96	318.30	75.25	.....	.....	.....	.....	.....	.....	.....	.....	216.00	226.94	.....	7,597.02	8,039.96	Washington Asphalt Block and Tile Co.

Total cost of street, \$11,648.74, divided between northeast and southeast sections, as shown.

\$40 paid from 1903 appropriation.

^e Adjustment of old surface at end of asphalt block pavement.

^f Details of whole street shown in southeast section.

^g Adjustment of old surface at end of asphalt block pavement.

^h Commissioners' order, Nov. 29, 1901.

TABLE E—Continued.—Work on county roads and suburban streets for year ended June 30, 1902.

Street.	From—	To—	Kind of improvement.	No. of contract.	Square yards.	Length.	Price.	Contract work.												Material.
								Feet.	Cu. yds.	Cu. yds.	Cu. yds.	Hauled over 2,500 feet.	Old cob- ble re- moved.	Old curb re- moved.	Straight curb reset.	Circular curb reset.	Straight curb set.	Circular curb set.	Cobble gutters.	Vitrified block gutters.	Vitrified block.	s by s straight curb.	6 by 20 straight curb.
Crescent.....	Sixteenth.....	Westward.....	Asphalt block.....	2926	965.74															
Huntington place.....	Fourteenth.....	University place.....	Asphalt and macadam.....	2926	1,634.62	280	\$1.77	247	1,154	154	247	600	251	5,70	5,86	555.80	917.43			
Blagden avenue.....			Grading and macadam.....	2915	7,666	400		14,442											2,520	
Elm avenue.....	Third.....	Fourth.....	Asphalt.....	2956	780.27	1,154	1.72	200					904	60	15.96	9.49	817.32	91.29		
Erle.....	Champlain.....	Sixteenth.....	Grading and macadam.....	3019	2,139	400		1,176	443	461	401	151	210	497.50	34.64					
Gales.....	Fifteenth.....	Seventeenth.....	Asphalt block.....	2926	3,014.50	1,100	1.77	401												
Do.....	Intersection 15th.....		Asphalt.....	2976	198.97	65	1.72	151												
Pennsylvania avenue.....	River.....	Minnesota avenue.....	Grading and macadam.....	3013	3,000	1,125		2,245.50	831.28											
Fourth NE.....	V.....	W.....	Asphalt.....	2956	1,725.93	582	1.77	2,245.50	831.28											
Woodbridge subdivision.....			Grading.....	3012				1,725.50												
Connecticut avenue west of Rock Creek.....			do.....	3028				1,725.50												
Columbia road west of Fourteenth street.....			Asphalt.....	2976	1,815.79	646	1.72	855												
California and Wyoming. Twenty-third and Twenty-fourth, Decatur street.....			Grading and macadam.....	3013	2,139	855		9,991	583.86											
Thirty-seventh.....	New Cut road.....	Tennallytown road.....	do.....																	
Illinoi avenue.....			Grading.....	2916				21,636												
Providence.....			Grading and macadam.....	3013	1,613	660		2,152	6387.419											
Nebraska avenue.....			do.....	2915	8,555	3,500		13,620												
Genesee.....	Brightwood avenue.....	Fourteenth.....	Grading.....					4,375												
Connecticut avenue.....	Leroy place.....	Kalorama avenue.....	Asphalt.....	2976	447.87	89	1.72	21,918		1,720	1,378	6,55	9.42	726.05	21.98			56.91	1,439	726.70
Bunker Hill road.....			Grading and macadam.....	3058	4,848	1,950		16,990	61,199										1,728	
Trenton.....			do.....	3013	1,811	741		920												
Joliet.....	Wisconsin avenue.....	Tunlaw road.....	Grading.....	2921				51,193	650.81											
Bennings and Anacostia road.....			Grading and macadam.....	3013	7,822	3,200	1.77	4,825	61,517.97											
Cincinnati and Connecticut avenue.....			Asphalt.....	2976	8,650.79	2,224	1.77	1,494	756											

a Macadam hauled to street.

b Old concrete pavement removed.

c \$60 for inspection paid from 1903 appropriation.

TABLE E—Continued.—Paving roadways under permit system.

Quincy and Randolph.....	Connecticut avenue.....	Twenty-ninth.....	Asphalt block.....	2926	4,518.24 { 12,201.51	814 650	\$1.77	6,848									4,332.20	166.62		4,332.85
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Quincy.

f Randolph.

TABLE E—Continued.—Work on county roads and suburban streets for year ended June 30, 1902.

Kind of improvement.	No. of contracts.	Contract work.										Material.										Name of contractor.					
		Square yards.	Length.	Price.	Ordinary grading.	Macadam grading.	Hauled over 2,500 feet.	Old cobble removed.	Old curb removed.	Straight curb reset.	Circular curb reset.	Straight curb set.	Circular curb set.	Cobble gutters.	Vitrified block gutters.	Vitrified block.	8 by 8 straight curb.	6 by 20 straight curb.	Circular curb.	Cost of material.	Cost of inspection.	Cost of extra work.					
Asphalt block	226	905.74	280	\$1.77	247	154	247	251	5.70	5.86	545.80	505.32	9.42	\$386.59	\$48.00	\$2,147.46	-----	\$2,584.00	-----	-----	-----	-----	Washington Asphalt Block and Tile Co.				
do	226	1,634.02	490	1.77	461	300	609	210	497.50	34.64	917.43	917.49	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	Do.			
Grading and macadam	2918	7,000	3,000	-----	14,442	-----	-----	-----	-----	-----	-----	-----	2,720	2,405.43	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	Killeen & Ball.		
Asphalt	2976	780.27	400	1.72	200	-----	-----	304	60	15.96	9.49	817.32	91.29	253.14	816.75	87.95	871.31	80.00	108.86	-----	-----	-----	-----	-----	Warner-Quinlan Paving Co.		
Grading and macadam	3013	2,821	1,154	-----	1,476	443	-----	2.2	30	18.80	-----	1,393	2,242.40	-----	-----	-----	-----	847.73	32.00	3,164.22	-----	-----	-----	-----	Carmody & Hough.		
Asphalt block	2926	3,014.59	1,100	1.77	401	151	-----	-----	-----	-----	-----	-----	-----	2,124.48	114.27	1,686.39	94.00	278.50	-----	-----	-----	-----	-----	-----	-----	Washington Asphalt Block and Tile Co.	
Asphalt	2976	188.95	65	1.72	-----	-----	-----	-----	-----	-----	-----	-----	-----	26.92	1,400	-----	-----	29.34	-----	-----	-----	-----	-----	-----	-----	Warner-Quinlan Paving Co.	
Grading and macadam	3012	3,000	1,125	-----	2,545.50	831.28	-----	-----	-----	-----	-----	-----	374	1,475.37	-----	-----	-----	1,310.23	76.00	1,067.96	414.62	2,268.81	-----	-----	-----	Carmody & Hough.	
Asphalt	2976	1,727.43	582	1.77	1,78.50	-----	-----	13	27.75	-----	-----	1,475.37	297.63	12,823	1,480.78	-----	-----	-----	1,288.22	76.00	2,725.34	127.50	5,730.29	100.20	2,825.54	-----	Warner-Quinlan Paving Co.
Grading	3012	-----	-----	-----	13.308	9.366	-----	-----	-----	-----	-----	-----	302	1,882	-----	-----	-----	1,288.22	76.00	21.98	-----	-----	-----	-----	-----	Carmody & Hough.	
do	3028	-----	22	13.308	4.741	1,882	-----	-----	-----	-----	-----	-----	104.00	9,003.01	471.56	-----	-----	9,578.57	-----	-----	-----	-----	-----	-----	-----	G. B. Mullen.	
Asphalt	2976	1,815.79	646	1.72	-----	855	-----	-----	265.60	-----	-----	361.30	14,648	-----	-----	-----	307.00	134.25	4,299.88	4,741.13	-----	-----	-----	-----	-----	Warner-Quinlan Paving Co.	
Grading and macadam	3013	2,139	875	-----	9,991	583.86	-----	-----	-----	530	-----	2,718	-----	-----	880.87	248.00	7.92	3,153.41	641.12	4,931.32	-----	-----	-----	-----	-----	Carmody & Hough.	
Grading	2016	-----	-----	-----	21.036	-----	-----	-----	-----	-----	-----	106.50	-----	-----	-----	-----	1,822.91	1,929.41	-----	-----	-----	-----	-----	-----	-----	Huidekoper-Blundon, Talty, and day labor.	
Grading and macadam	3013	1,613	660	-----	2,152	437.419	-----	-----	-----	-----	-----	577.80	-----	-----	-----	-----	4,426.92	361.77	4,426.92	361.77	4,791.09	-----	-----	-----	-----	W. H. H. Allen.	
do	2915	8,555	3,500	-----	13,620	-----	-----	-----	-----	-----	-----	585.93	60.00	-----	-----	-----	885.75	384.93	1,916.61	-----	-----	-----	-----	-----	-----	Carmody & Hough.	
Grading	3013	-----	-----	-----	4,575	-----	-----	-----	-----	-----	-----	52.96	-----	-----	-----	-----	3,389.80	1,023.32	4,406.02	995.74	995.74	-----	-----	-----	-----	Andrew Gleason.	
Asphalt	2976	447.87	89	1.72	21,918	-----	1,290	1,378	6.55	9.42	726.05	21.98	-----	56.91	1,430	726.70	-----	22.40	560.41	c76.00	628.00	5,798.25	1,475.50	1,077.23	9,015.39	Colburn Paving Co.	
Grading and macadam	3058	4,848	1,950	-----	16,990	61,199	-----	-----	-----	-----	-----	1,728	-----	-----	1,814.89	168.98	-----	192.81	168.98	1,814.89	254.84	-----	-----	-----	-----	-----	Warner-Quinlan Paving Co.
do	3013	1,811	741	-----	920	-----	-----	423.50	-----	540.75	-----	842	-----	-----	-----	-----	1,399.53	332.00	-----	1,009.07	74.97	2,875.57	-----	-----	-----	-----	M. F. Talty.
Grading	3021	-----	-----	-----	51,193	40,50,81	-----	-----	-----	-----	-----	5,891.73	-----	-----	-----	-----	11,159.99	1,726.38	18,778.10	1,726.38	18,778.10	-----	-----	-----	-----	Carmody & Hough.	
Grading and macadam	3013	7,822	3,200	-----	4,325	61,517.97	-----	2,151.74	1,353.24	143.19	1,650.91	44,328	-----	143.19	2,400.87	1,076.50	687.00	210.22	1,067.96	1,255.44	4,724.27	-----	-----	-----	-----	John Jacoby.	
Asphalt	2976	8,650.79	2,224	1.77	1,494	750	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	Warner-Quinlan Paving Co.		

^b Old concrete pavement removed.^c \$60 for inspection paid from 1903 appropriation.^d \$2,027.48 paid by City and Suburban Railroad included.

TABLE E—Continued.—Paving roadways under permit system.

Asphalt block	226	{ 4,518.24 12,201.51	814 650	1.77	6,848	-----	4,332.20	166.62	-----	4,332.85	-----	150.47	\$3,073.48	\$64.00	-----	\$16,017.81	-----	\$10,155.29	-----	-----	-----	-----	-----	-----	Washington Asphalt Block and Tile Co.
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^e Quincy.^f Randolph.

TABLE F.—Repairs to asphalt and concrete pavements for year ended June 30, 1902.

[Work done by Cranford Paving Company under contract 2774.]

Street.	From—	To—	Repairs to pavements.										Curb work.				Total cost of work.	Original pavement			
			New pavement.	New surface.	Base.	Binder.	Old pavement removed.	Grading.	Vitrified block gutters.	Number of blocks.	Cost of blocks.	Cost of inspection.	Extra work.	Cost of repairs.	Old curb removed.	Curb set.	Curb reset.	Cost of material.	Cost of curb work.		
R, NW	Connecticut avenue	Twenty-first	Sq. yds.	Sq. yds.	Cu. yds.	Cu. ft.	Cu. yds.	Cu. yds.	Sq. yds.					\$183.78					\$183.78	Coal tar	
R, NW	New Jersey avenue	First	1,852.02	189.87	7.50	550	37	800	267.55	11,710	\$250.83	-----	\$31.02	5,161.70	255	11,319.14	138.20	3662.70	\$1,269.82	Granite	
B, NE	First	Sixth	1,634.01	1.67	3,740	140	40	296.75	13,000	278.46	10,81	3,525.84	200	1,218.92	79.69	32.47	415.76	3,431.60	Coal tar		
Do	Sixth	Seventh	2,153.57	108.50	4,004	185	25	353.23	15,462	331.20	\$16.00	4,699.11						4,699.11	Asphalt		
Fourth, NW	Fourth	Eleventh	1,912.56	285.19	7.50	572	670	50	761.55	33,370	722.37	74.00	6,479.76						6,512.89	Coal tar	
P, NW	New Jersey avenue	P	69.42	7,315.18	330	16,182	423	110	1,606.40	68,475	1,468.65	118.00	17,298.14	159	158.26	338	14.18	200.65	17,408.79	Asphalt	
Eighth, NW	P	Q	1,384.30	143	2,574	80	15	2,084.84	9,904	237.45	30.00	3,108.40						4,508.74	do		
M, NW	Q	Seventh	1,979.40	215.88	3,872	80	20	3,82.80	12,750	281.88	30.00	2,684.89	28	55.40	242.35	28.26	78.04	4,586.78	do		
O, NW	Ninth	Ninth	1,150.43	21.16	2,461	80	25	306.48	12,925	281.64	26.00	2,684.89						4.06	2,684.89	Coal tar	
Nineteenth, NW	Tenth	Eleventh	2,983.02	328.68	5,287	190	270	339.17	22,045	492.25	52.00	6,279.68		72.88	161.50	46.26	98.91	7,849.45	do		
V, NW	Eleventh	Sixteenth	440.70	19.30	895					12.00									11,414.47	Asphalt	
Dupont circle, west side			638.34							748.39									775.50	Asphalt	
L, NW	New Hampshire avenue	Twenty-fourth	2,108.78	126	3,498	88	23	329.70	13,800	299.33	36.00	4,296.86						49.82	1,693.83	Coal tar	
North Capitol, east side	H	I	638.35	73.75	1,219	8		100.05	4,178	90.04	28.00	1,511.88	22	18.84	388.43	18.84	93.50	11.49	1,308.33	Asphalt	
Third, SW	F	E	303.72	1,243.44	85.56	2,948	10	42	204.32	8,600	187.06	32.00	3,368.30						93.50	1,694.88	Asphalt
E, SW	Third	Fourth-and-a-half	36.76	2,106.53	46.63	4,388	80	20	331.53	13,900	301.17	42.00	4,405.43						61.63	3,429.93	Coal tar
Q, NW	New Hampshire avenue	Nineteenth	1,538.74	12	123.50	62	75	201.34	8,585	186.55	78.00	20.24	3,408.16	45	46.64	941.06	45.10	235.20	3,703.36	Asphalt	
Seventeenth	H	H	564.90	25.84	1,106	25.30	7	107.00	4,635	100.63	36.00	1,251.29						1,251.29	1,251.29	Coal tar	
Twenty-first	Hillyer	R	838.66	12.52	1,408	32	10	141.46	6,120	133.27	36.00	1,638.51	36	23.59	321.55	23.55	90.24	1,788.75	do		
Potomac	Prospect	N	734.69	.20	1,694	24.80	8	139.09	5,925	129.10	34.00	1,635.22	40	38.65	474.18	18.84	133.23	1,768.45	Asphalt		
North Capitol, east side	L	K	805.49	65.49	1,369.31	9.20		113.35	4,824	104.18	26.00	1,676.50	9.42	437.81	9.42	89.91	1,766.41	Asphalt, bituminous base			
Twenty-first	Columbia road	Wyoming	266.92	74.54	154		150	36.00	1,758	38.50	24.00	780.34	58.15	76.31	15.72	27.87	63.98	844.32	New pavement		
First, SW, around Garfield monument			252.59	{ 957.67	{ 362	{ (2,281.50	{ 57.60	50	358.59	15,571	338.94	116.00	{ 4,170.68	{ 15	{ 15.40	1,005.23	{ 10.76	{ 298.23	{ 4,436.01	Asphalt	
Intersection Maryland avenue, Fifteenth, and H, NE			6204.86	{ a 2,340	{ 5,913	{ 193							{ 3,834.46	{ 15	{ 15.40	1,005.23	{ 10.76	{ 298.23	{ 4,436.01	Asphalt	
Do			1,540.41	72.20		198	c 20.20	400	128.87	5,800	121.55	92.00	93.92	3,746.33	45	80.06	326.08	40.62	129.28	5,813.61	Granite block
Nineteenth, NW, extention to Florida avenue			426.67				10	47.42	1,996	41.84									862.19	New pavement	
Columbia road, front of lot 7, Oak Lawn			80.31				d 70	30	24.70	855	18.67	12.00		230.51		196			239.51	do	
Minor repairs:			54,919.77	cubic feet asphalt surface laid, at 60 cents.															98,621.85		
40,855.50	cubic feet asphalt binder laid, at 31 cents.																		\$32,951.86		
35.04	cubic yards bituminous base, at \$1.																		12,665.21		
14.26	cubic feet asphalt surface burned out and replaced, at \$1.																		106.92		
0.50	cubic yard natural cement concrete base laid, at \$5																		147.00		
17 square yards asphalt blocks hauled to property yard, at 12 cents.																			2.50		
49 linear feet curb reset, at 15 cents																			2.04		
1 manhole raised to grade, at \$1.00																			7.35		
																			1.90		
																			45,884.78		
																			144,506.63		

^a Paid from appropriation 1903.^b Paid from appropriation 1901.^c Square yards granite block removed.

TABLE F.—Repairs to asphalt and concrete pavements for year ended June 30, 1902.

[Work done by Cranford Paving Company under contract 274.]

New pavement.	New surface.	Base.	Binder.	Repairs to pavements.							Curb work.							Original pavement.	Year laid.	Contractor.	Remarks.		
				Old pavement removed.	Grading.	Vitrified block gutters.	Number of blocks.	Cost of blocks.	Cost of inspection.	Extra work.	Cost of repairs.	Old curb removed.	Curb set.	Curb reset.	Cost of material.	Cost of curb work.	Total cost of work.						
				Yds.	Sq. yds.	Cu. yds.	Cu. ft.	Cu. yds.	Sq. yds.														
1,857.02	201.96	201.96	201.96	180.87	550	95	800	287.55	11,710	8250.83	\$31.02	5,161.70	235	1,319.14	138.20	\$62.70	\$1,269.82	Coal tar	1887	H. L. Cranford			
				1,634.01	3,740	140	40	296.75	13,000	274.46	10.81	5,161.70	200	1,218.02	79.69	32.47	415.76	Granite	1879	Thos. Joyce			
				2,133.57	108.50	4,004	185	25	353.23	15,462	331.20	816.00	4,092.11	4,092.11					Coal tar	1887	Barber Asphalt Paving Co.		
1,912.56	285.30	7.50	572	670	50	761.55	33,370	522.37	74.00	6,479.76								Asphalt	1888	H. L. Cranford			
69.42	7,245.18	337	16,182	423	110	1,606.51	68,165	1,468.05	118.00	17,208.14	150	358.26	14.18	200.05	1,408.79			Coal tar	1872	Thos. Lewis & Co			
	1,380.30	143	2,574	68	15	255.84	10,900	237.54	14.00	3,169.40								Asphalt	1884	Barber Asphalt Paving Co.			
	1,975.40	215.89	3,872	80	20	302.80	12,750	281.88	30.00	4,508.74	28	55.40	242.95	28.26	78.04	4,586.78			do	1888	do		
	1,150.33	21.16	2,461	80	25	306.48	12,925	281.64	26.00	2,680.89								Coal tar	1879	L. S. Baldwin			
	2,382.92	32.00	5,287	190	270	539.17	22,645	492.25	72.00	6,970.33								do	1875	L. V. W. Vandenburg			
	449.70	19.30	845							72.88		161.56	46.26	98.91	7,898.45			do	1877	C. E. Evans			
638.31	2,108.78	126	3,498	85	23	144.15	5,889	133.02	36.00	1,620.01								Asphalt	1891	Barber Asphalt Paving Co.			
	638.95	73.75	1,219	8		100.05	4,178	90.04	28.00	329.70	130.00	295.33	30.00	30.00	30	49.82	1,669.83	Coal tar	1873	C. E. Evans			
303.72	1,243.44	85.56	2,948	10	42	204.32	8,600	187.06	32.00	1,511.88	22	18.84	388.43	18.84	93.50	4,308.35			Asphalt	1883	Barber Asphalt Paving Co.		
36.76	2,106.53	46.63	4,388	80	20	331.53	13,900	301.17	42.00	4,405.13								Asphalt	1887	do			
	1,538.74	12	123.50	62	25	201.34	8,585	186.55	58.00	20.24	46.64	348.16	45	46.10	941.06	4,406.30			do	1875	W. C. Murdoch		
	564.90	25.84	1,106	25.30	7	107.90	4,635	100.63	36.00	1,251.29								do	1886	H. L. Cranford			
	838.66	12.52	1,408	32	10	141.40	6,120	133.27	36.00	1,638.51	36	23.50	321.55	23.55	90.21	1,251.29			do	1888	do		
	791.69	20	1,694	21.80	8	139.99	5,925	129.30	34.00	1,635.22	40	38.65	474.18	18.84	133.23	1,708.45			Asphalt	1887	John O. Evans		
	845.49	65.49	1,390.31	9.20		113.35	4,824	104.18	26.00	1,676.50	9.42	9.42	437.81	9.42	89.91	1,706.41			Asphalt	1884	H. L. Cranford		
236.92	74.34	154		150		36.90	1,758	38.50	24.00	780.34	58.15	76.31	15.72	27.87	63.98	844.32			New pavement	1889	Barber Asphalt Paving Co.		
252.50	937.67	{ 2,239.50	{ 362	{ 57.60	{ 50	358.50	15,571	338.94	116.00	{ 4,170.63	{ 15	15.40	1,065.23	10.76	298.23	{ 4,469.01			Asphalt	1883	do		
204.86	{ 2,340	{ 302	{ 5,313	{ 30	{ 24.70	358.50	15,571	338.94	116.00	{ 3,834.46	{ 15					{ 3,834.46			do	1889	do		
510.41	52.20		198	20.20	400	128.87	5,800	121.57	92.00	93.92	3,746.33	45	80.05	326.08	40.62	129.28	12,605.21			Granite block	1889	do	
426.67					10	47.42	1,996	44.41									106.92			do	1889	Andrew Gleeson	
80.31					70	30	24.70	855	18.67	12.00		239.51	196				147.00			do		do	
																	2.50						
																	2.04						
																	7.35						
																	1.90						
																	45,884.78						
																	144,506.63						
																	98,621.85						

^bPaid from appropriation 1901.^cSquare yards granite block removed.^dSquare yards.

Connecting with previous pavements.

Granite block pavement removed.

Extension of pavement.

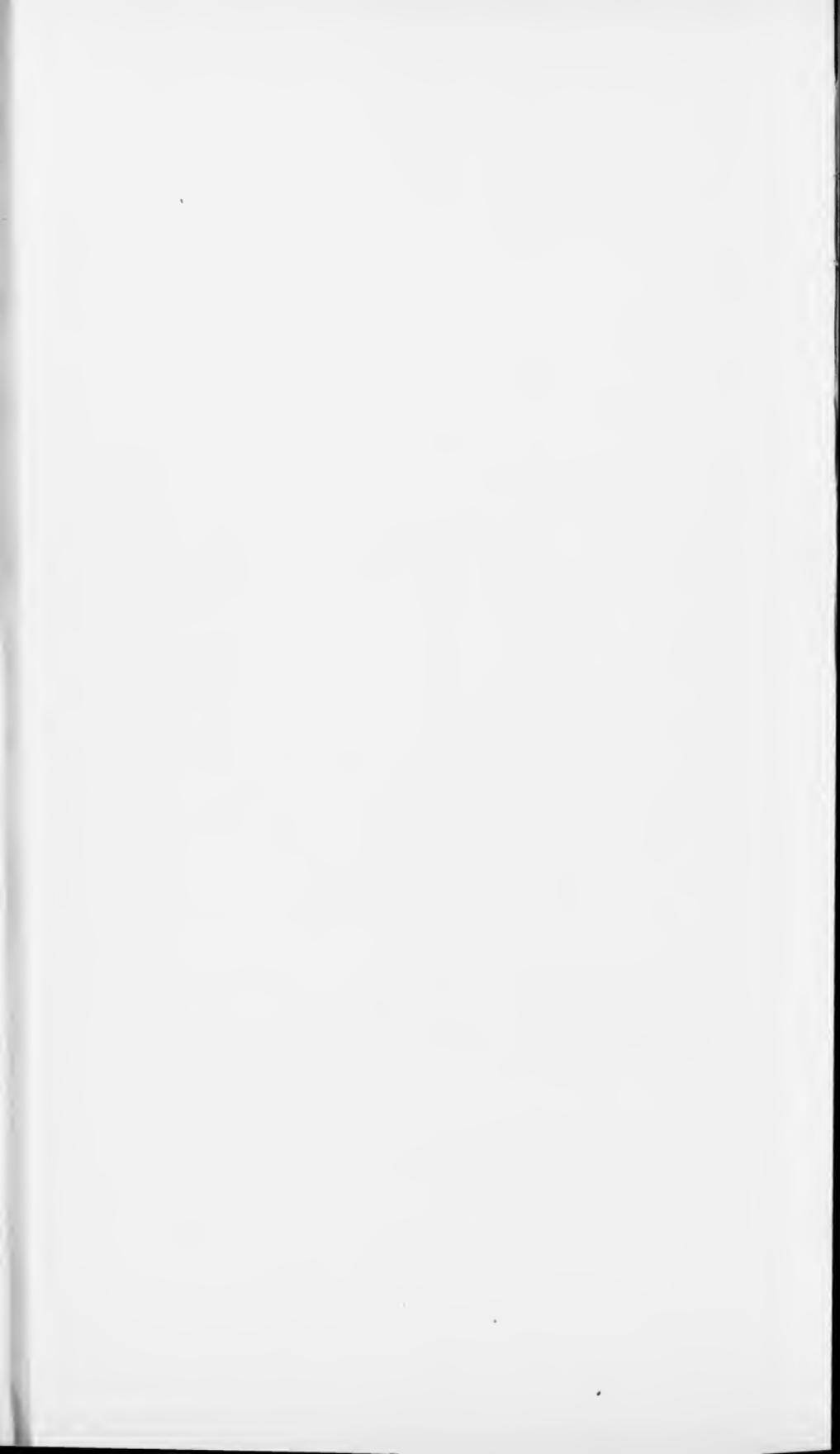


TABLE G.—*Work of street paving and repairs chargeable to street railroads for year ended June 30, 1902.*

Locality.	Amount.	Locality.	Amount.
METROPOLITAN.			
Dupont Circle	\$267.43	COLUMBIA—continued.	
East Capitol street, Thirteenth to Fifteenth	2,828.19	Minor repair:	
Minor repairs:		Massachusetts avenue NW, Fourth to Seventh	\$105.54
Ninth, NW, K to L	1.82	H, NE, First to Fifteenth	28.67
Ninth, NW, P to Florida avenue	25.93	H, NW, First to Third	22.42
Ninth, NW, T to K	7.06	New York avenue NW, Tenth to Thirteenth	43.35
H, NW, Thirteenth to Vermont avenue	.42	Ninth and K, NW	4.55
Four-and-a-half, SW, Missouri avenue to Maryland avenue	104.22	H, NE, North Capitol to First, New York avenue, Tenth to Twelfth	7.23
Connecticut avenue and S, NW	1.35	Total	4.55
Thirtieth and O, NW	1.37		1,449.97
Thirty-fifth, NW, N to P	5.46	ANACOSTIA AND POTOMAC RIVER.	
Dumbarton, Twenty-eighth to Thirty-second	1.33	Paving space occupied by abandoned tracks:	
Ninth, NW, G to New York avenue	20.93	Maryland avenue SW, Third to Four-and-a-half	1,783.48
Tenth and F, NW	1.82	O, NW, Fourth to Eleventh	7,457.01
Second and Indiana avenue NW	21.84	P, NW, Fourth to Eleventh	7,213.09
Ninth, NW, Massachusetts avenue to N	35.49	Fourth, NW, G to K	10,165.81
Fourteenth, NW, F to New York avenue	10.01	First, SW, and Maryland avenue, Pennsylvania avenue SE, Twelfth to Thirteenth	860.23
Connecticut avenue, K to Dupont Circle	11.50	Total	337.10
Ninth, NW, E to K	8.19	Minor repairs:	
New York avenue and D, NW	6.37	Eleventh and I, NW	9.88
First, NE, East Capitol to B	18.20	Elm, Third to Fourth, and Third to Spruce	35.46
F, NW, Ninth to Fourteenth	18.20	Fourteenth, NW, Pennsylvania avenue to B	6.37
H, NW, Fifteenth to Seventeenth	38.22	E, NW, Ninth to Eleventh	2.73
D, NW, New York avenue to First	26.39	First, Pennsylvania avenue to Maryland avenue	4.55
Seventeenth, NW, I to K	1.80	Fourteenth and Pennsylvania avenue NW	3.64
Connecticut avenue, K to M	40.00	Eleventh and H and Eleventh and I, NW	6.37
Thirty-fifth, NW, N to O	2.73	Eleventh and G and Eleventh and Massachusetts avenue	9.10
Total	3,507.10	Fifth and G, SE	14.27
CAPITAL TRACTION.			
First, SW, and Maryland avenue	421.59	Total	27,909.09
Pennsylvania avenue SE, between Twelfth and Thirteenth	15.78	CITY AND SUBURBAN.	
Minor repairs:		North Capitol, H to I	150.59
G, NW, Seventeenth to Eighteenth	8.64	North Capitol, I to K	144.45
M, NW, bridge to Thirty-first	50.32	C, NW, First to New Jersey avenue	42.35
Twenty-sixth, NW, Pennsylvania avenue to M	10.30	Minor repairs:	
First, NW, Pennsylvania avenue to Maryland avenue	1.82	G, NW, Second to Fourth	1.36
Sixteenth and V, NW	7.28	Sixth, NW, and Pennsylvania avenue	18.49
Pennsylvania avenue NW, Seventh to Fifteenth	12.74	New Jersey avenue and G, NW	10.92
Pennsylvania avenue NW, Fifteenth to Eighteenth	38.22	Fifth and K and Fifth and L, NW	2.73
Cincinnati and Rock Creek bridge	.91	Florida avenue and Eckington place	2.73
Fourteenth, NW, Howard to Whitney avenue	4.55	R, NE, Second to Third	1.41
Around Thomas Circle	10.92	G, NW, North Capitol to New York avenue	93.40
Around Washington Circle	7.28	D, NE, Maryland avenue to Ninth	5.46
Pennsylvania avenue NW, Twentieth to Twenty-sixth	37.23	G, NW, Second to Fourth	7.28
Total	627.58	North Capital and I	3.64
GEORGETOWN AND TENNALLYTOWN.		G, NW, Seventh to Ninth	.91
Thirty-second and M, NW	3.64	Fifth and Massachusetts avenue	10.92
Intersection, Maryland avenue, Fifteenth and H	1,238.61	North Capitol and K and North Capitol and New York avenue	21.84
		Tenth and G, NW	3.64
		Total	522.12

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TABLE H.—*Work done by day labor under appropriation of "Current repairs to streets, avenues, and alleys," from July 1, 1901, to June 30, 1902.*

Brick sidewalk laid.....	square yards..	2,515
Brick sidewalk relaid.....	do	21,984
Asphalt block paved.....	do	986.83
Asphalt block repaved.....	do	2,282
Vitrified brick repaved.....	do	1,569
Vitrified block paved.....	do	378.50
Vitrified block repaved.....	do	2,783.25
Cobble paved.....	do	10,222
Curb set.....	linear feet..	128.63
Curb reset.....	do	1,967.35
Flag laid.....	do	682.50
Flag relaid.....	do	4,012
Granite block.....	square yards..	2,605
Asphalt-tile sidewalk relaid.....	do	1,897
Cement sidewalk.....	do	327.57
Grading.....	cubic yards..	12,064.50
Graveling.....	square yards..	5,816
 Labor.....		 \$28,166.62
Material.....		1,625.20
		29,791.82

TABLE I.—

Job No.	Location.	For whom done.	Grading.	Cement sidewalk.	Curb re-set.	
				Cu. yds.	Sq. yds.	Lin. ft.
2000	East side Fourth street, between South and Central avenue.	John T. Larcombe	165			
2001	212 C street SW	Watts Bros	4			
2002	West side Murray place, between B and C streets.	Richard Knight		69.66		
		Washington Loan and Trust Co.		136.39		
2003	113 to 121 U street NW	T. M. Haislip		74.89		
2004	1318 and 1320 B street NE	Daly Bartholomew		48.53		10
2005	South side C street, between Third and Four-and-a-half NW.	Geo. J. Johnson			25.34	26
2007	318 Indiana avenue NW	Wm. Birney			25.38	25
2008	535 and 537 Eighth street SE	H. I. Meader			80.57	
2009	525 Eighth street SE	Eugene Schwab			43.99	
2010	1801 Massachusetts avenue	Chas. A. Langley			471.93	25
2011	407 Tenth street NW	Thos. Walsh			63.55	
2012	Alley, square 254	Washington Post Co.	15			
2013	Alley, block 5, West Eckington	Geo. Truesdell			80	
2014	511 A street NE	A. D. Hazen			4	
2015	North side U street, between North Capitol and First NW.	David Moore and J. F. Barbour, trustees	445		7	36.59
2016	East side Lincoln avenue, front lot 27, block 4, and lots 35 to 40, block 5.	Geo. Truesdell			215.88	
2017	South side G street, between Fourteenth and Fifteenth SE., and north side Georgia avenue, between Fourteenth and Fifteenth.	Thos. H. Pickford			520.15	390
2018	1702 Nineteenth street NW	Arnold H. Hord			21.57	
2019	216 A street NE	W. H. Marlow			3	
2020	Southeast corner Thirteenth and F streets NE.	Ed. I. Lanahan			105.99	9
2021	Alley, block 3, Cliffbourne	E. J. Stellwagen	123			
2022	Southeast corner Twelfth and V streets NW.	A. B. Willis	2			
2024	Southern Railway, Thirteenth and E streets NW.	Southern Rwy. Co.			204.18	47
2025	425 Tenth street NW	James M. Johnston			49.81	
2026	409 Fifteenth street NW	D. E. McComb			17.12	
2027	1739 N street NW	Chas. A. Langley			36.22	
2028	Fifth street NE., between E and F	Washington Brewery Co.				
2029	533 Eighth street SE	Louis Schneber			39.14	
2030	1817 H street NW	John S. Larcombe			25.10	
2031	1527 S street NW	J. E. Bates			18.14	
2032	101 and 103 Fifth street NE	J. S. L. Rodrick			60.66	
2033	107 Fifth street NE	M. A. Austin			18.55	2
2034	105 Fifth street NE	James H. Harris			19.23	
2035	1130 Fifth street NW	W. H. Black			20.76	
2036	1122 Fifth street NW	John F. Schaefer			20.16	
2037	Brookland, M. E. Church, corner Tenth and Frankfort streets.	Rev. J. H. Hyatt			100.46	
2038	1432 Welling place	C. E. West			20.24	
2039	Southeast corner Nineteenth and N streets NW.	Chas. A. Langley	5			40
2040	Northwest corner Fourteenth and H streets NW.	Z. D. Blackiston			39.39	26
2041	15 and 17 Third street NE	Wm. H. Henning			47.84	3
2042	West side Fifteenth street SE., lots 52 and 53, square 1058.	S. L. Phillips			139.61	
2043	Rear 122½ Four-and-a-half street SW	W. T. Otis				23.50
2044	D street NW., between Fourteenth and Fifteenth.	W. T. Nailor	6			37
2045	484 P street NW	Christiani Drug Co.			61.74	33
2046	2038 Tenth street NW	Frank P. Burke				
2047	Corner Sixth and K streets NW	Wm. J. Zeh	3			
2048	Square 221, Lafayette Opera House	James R. Ash				2.50
2049	47 Franklin street, Anacostia	T. J. Putnam				
2050	North side H street NW., between Nineteenth and Twentieth.	J. B. Lambie			63.51	
2051	1020 Ninth street NW	Dr. W. H. Heron			28.22	31

OPERATIONS OF THE ENGINEER DEPARTMENT, D. C.

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Regular permit.

TABLE I.—*Regular*

Job No.	Location.	For whom done.	Grading.	Cement sidewalk.	Curb reset.
2052	1760 Corcoran street NW	M. R. Wiley	Cu. yds.	Sq. yds.	Lin. ft.
2053	1231 Maryland avenue NE	E. T. Kaiser		19.38	26
2054	North side T street NW, from North Capitol to First.	Moore & Barbour	1,000		
2055	Lot 6, Gass subdivision, Whitney Avenue Mission.	Whitney Avenue Union Mission		41.83	9
2056	2217 to 2231 Fifteenth street NW	F. W. McReynolds	8		
2057	1532 Park street NW	J. H. Cranford		27.63	
2058	1534 Park street NW	Margt. J. Cranford		48.81	
2059	929 P street NW	Dudley A. Denison		22.63	
2060	1503 Ninth street NW	J. Fred. Kelly		30.68	25
2062	1023 Thirty-first street NW	J. C. Johnson	6		12
2063	Lot 238, Fourteenth street and east 25 feet of lot 15, Park street, Mount Pleasant.	Chas. Schneider		91.72	
2064	202 to 205 and 206 to 215 U street NW	Geo. S. Cooper		234.13	
2065	East side Seventh and south side G street, square 455.	Wm. Schwing		301.51	
2066	South side Park street, east of lot 4, block 1, S. P. Brown's subdivision.	H. H. Parmenter		38.22	
2068	1545 Park street NW	D. S. Carl		30.57	
2069	10th and G streets NW	Woodward & Lothrop			
2070	Lot 191, south side U street NW, square 1282.	Mrs. Purcell		58.26	
2071	Lots 184-187, south side U street NW, square 1282.	C. C. Duncanson		78.04	
2072	Lots 172-174, south side U street NW, square 1282.	Annie E. Johnson		74.85	8
2073	1346 H street NE	C. H. Franzoni		61.06	
2074	1312 Fourteenth street NW	M. M. Parker	3		
2075	North side P street NW, Hamline M. E. Church.	O. M. Bryant		153.35	
2076	West side Thirtieth street, between Irving place and U street.	D. J. Cotter		28.96	
2077	1620 Twenty-ninth street NW	E. K. Fox		24.86	
2078	South side Dumbarton street, lots 1 and 2, square 1233.	Lloyd D. Smoot		47.34	62.40
2079	1130 Fourteenth street NW	Chas. H. Fishbaugh	3		
2080	South side R street, abutting lot 15, block 7, Kalorama Heights.	J. D. Patten		58.61	10
2081	South side R street, between Twenty-second and Sheridan circle.	J. H. Gore		28.87	5
2082	627 Louisiana avenue NW	R. P. Andrews		120.40	40
2083	36 to 42 Pierce street NW	James Robbins		45.68	
2084	1225-1227 Delaware avenue SW	W. S. Lofton		31.11	
2085	1225 Twelfth street NW	L. E. Brenninger		19.29	29
2086	West side Thirty-sixth street NW, "House of Good Shepherd."	M. F. Tafty			
2087	North side Florida avenue NE, at Fourteenth street.	T. L. Holbrook			8.50
2088	1513 and 1516 Caroline street NW	J. Ed. Chapman		29.53	
2089	1703 K street NW	Cranford Paving Co.			
2090	1735 L street NW	"do"			12
2091	922 O street NW	Wm. N. Henderson		27.16	
2092	West side Twenty-ninth street north of N, NW	Weaver Bros			10
2093	926 O street NW	Isabella E. Love		27.26	
2094	934 O street NW	J. P. Spindle		27.01	
2095	932 O street NW	A. N. Skinner		26.90	
2096	710 and 712 D street NW	Richardson & Burgess			
2098	North side W street NE, lots 1, 2, 3, block 41, Metropolis View.	F. W. Backus	20	78.98	
2100	1723 De Sales street	Florence Campbell		25.93	
2101	1706 Nineteenth street NW	A. A. Tunstall		23.44	
2102	1704 Nineteenth street NW	D. P. McCartney		23.36	
2103	442 M street NW	Richardson & Burgess		26.50	23
2104	Madison street, between Seventeenth and Eighteenth NW, lot 331.	Chas. Early		28.13	
2105	1321 M street NW	R. O. Holtzman		71.41	

permit—Continued.

TABLE I.—*Regular*

Job No.	Location.	For whom done.	Grading.	Cement sidewalk.	Curb re-set.
			Cu. yds.	Sq. yds.	Lin. ft.
2106	South side Cincinnati street, lots 31 to 38, block 3, Clifbourne.	Kennedy & Davis	.....	151.95	.....
2107	3134 to 3150 Q street NW	R. W. Walker & Son	.....	143.19	135
2108	921 Pennsylvania avenue NW	B. H. Warner & Co	.....	66.39	.....
2109	1719 N street NW	Chas. C. Langley	.....	48.37	.....
2110	1446 Huntington place	Margaret L. Marsh	.....	17.37	.....
2111	1448 Huntington place	Sarah E. Peck	.....	15.08	.....
2112	1450 Huntington place	Chas. Loucks	.....	17.37	.....
2113	Post-office building, Park street, Mount Pleasant.	C. M. Campbell	.....	18.27	30
2114	1530 Fourteenth street NW	Geo. W. Parker	.....	27.16	34
2115	642, 644, 646, and 648 B street SE	P. Maloney	100	.....	.....
2116	Liberty Baptist Church, south side E street NW, between Seventeenth and Eighteenth.	Rev. I. Toliver	.....	51.81	45
2118	1701 K street NW	Thos. M. Seeds	.....	278.82	20
2119	1312 Q street NW	Zach. M. Knott & Co	.....	31.73	.....
2120	Cincinnati street NW, between Nineteenth and Twentieth.	E. J. Stellwagen	.....	375.65	.....
2121	Alley square 76, between C and D, Second and Third streets NE.	J. J. Healy	172	.....	23
2122	1910 E street NW	Woodruff Manf'g. Co	5	.....	28
2123	North side V street NE, between Third and Fourth.	L. J. Woolen	.....	.....	.....
2127	South side V street, between North Capitol and Lincoln avenue.	Moore & Barbour	8,000	.....	.....
2131	North side L street, between Twelfth and Thirteenth NW.	Mrs. C. G. Caughey	.....	51.78	5
2132	East side Connecticut avenue, north of Randolph street.	E. J. Stellwagen	153	516.40	.....
2133	Both sides Randolph street, between Connecticut avenue and Pierce Mill road.	do	251	838.66	.....
2134	Both sides Quincy street, between Twenty-eighth street and Connecticut avenue.	do	3,332	1,076.40	.....
2138	744 to 786 Harvard street	E. E. Gaddis	.....	267.28	.....
2139	Both sides Baltimore and Trumbull streets.	M. F. Talty	1,468	.....	.....
2141	Lots 52, 53, 54, 55 Lanier Heights	Guy H. Johnson	90	142.73	.....
2142	East side North Capitol street, between Albany and Detroit streets.	Joseph Paul	.....	557.10	.....
2143	1650 to 1658 Sheridan avenue NW	C. W. King, jr	.....	65.65	.....
2144	815 Seventh street SW	W. T. Smith	.....	36.75	2
2145	Northeast corner Twenty-ninth and Q streets NW.	Emma J. Nourse	.....	121.09	.....
2146	South side Ohio avenue, between Thirteenth and Thirteenth-and-a-half streets.	Barber & Ross	3	.....	.....
2147	Eighteenth and Riggs streets NW	John N. Nolen	.....	219.16	.....
2148	Southeast corner Eighth and I streets NW	Saml. Bensinger	8	.....	.....
2149	1443 and 1454 to 1466 Sheridan street	C. W. King, jr	.....	126.19	.....
2150	2026 R street NW	E. H. Schenck	.....	17.73	.....
2151	2238 Q street NW	R. A. Chester	.....	32.01	.....
2152	2024 R street NW	E. Quigley Smith	.....	20.56	.....
2153	1109 F street NW	R. W. Henderson	.....	32.14	9
2154	2001 Kalorama avenue	F. G. Eicker	.....	2.01	.....
2155	South side Highland avenue, Cleveland Park.	H. A. Gillan	50	45.26	.....
2156	217 F street NW	Galloway & Son	.....	54.25	3
2157	Lot 17, S. P. Brown's subdivision	Danl. Paul	8	.....	.....
2158	1118 and 1124 Fifth street NW	S. E. & J. E. Rosenthal	.....	40.79	.....
2159	3128-3130 Fourteenth street NW	James F. Barbour	.....	52.02	.....
2160	3130 Fourteenth street NW	do	.....	.....	.....
2161	3401-3403 S street NW	Ernest Dahle	.....	45.40	16

permit—Continued.

TABLE I.—*Regular*

Job No.	Location.	For whom done.	Grading.	Cement sidewalk.	Curb re-set.
			<i>Cu. yds.</i>	<i>Sq. yds.</i>	<i>Lin. ft.</i>
2162	Alley, square 67	Thos. F. Walsh	121		
2163	425 K street NW	Joseph F. Beck			
2164	2414 Pennsylvania avenue NW	J. D. Miles		53.20	3.60
2165	North side F street NE., lot 89-90, square 1028	E. K. Fox		40.44	
2166	1447 Sheridan avenue	G. R. Baldwin		14.76	
2167	First street, New Jersey avenue, and H street NW	Paul J. Pelz		631.90	297
2168	1512 Eighth street NW	Eliz. Muhleman		21.71	
2169	1518 Eighth street NW	Fred. G. Schultz		17.55	
2170	1520 Eighth street NW	Jos. Brazero		17.61	
2171	1526 Eighth street NW	E. G. Smith		15.49	
2172	1338 New York avenue NW	John S. Larcombe		48.59	27
2173	\$26 Connecticut avenue NW	Cranford Paving Co.		58.67	34
2174	Sixth street NE., between H and I streets	Rev. P. M. Rhinelander		95.89	
2175	Marlborough apartment house	Cranford Paving Co.		96.42	75
2176	East side Half street, between N and O streets SW.	Austin M. Cooper	28	51.70	
2177	631 to 639 Massachusetts avenue NW	E. B. Stumph		11.71	7.60
2178	Swann street NW, lots 71 to 76, square 177	Geo. J. Easterday		63.96	
2179	East side Fifth street NE., between B and C streets NE.	J. Ed. Fowler		21.14	16.80
2180	1811 H street NW	Warren C. Beach		22.97	23.40
2181	Tenth and N street, lot 1, square 339	William Fletcher		279.21	17
2184	1660 Sheridan street NW	Chas. W. King, jr		42.08	
2185	910 E street NW	D. A. Sanford		113.55	6
2186	1606 Fifteenth street NW	S. Dame Lincoln		22.68	
2187	1601 Fifth street NW	John H. Schlueter	2		10
2188	South side Swann street, lot 46, square 177	Geo. J. Easterday		90.07	
2190	720 Thirteenth street NW	L. E. Breuninger		74.92	
2191	North side Swann street, between Sixteenth street and New Hampshire avenue	Thos. A. Gaither		50.86	
2192	North side U street, between Seventeenth street and Florida avenue	Chas. W. King, jr	60	647.18	
2193	Southeast corner Fifth and K streets NW	B. F. Saul (agent)	2		
2194	1006 Massachusetts avenue NW	Ferd. T. Schneider		28.17	36.40
2195	1624 to 1628 Twenty-ninth street NW	John A. Pearson		26	
2196	West side Tennessee avenue, between East Capitol and B streets NE	G. W. Strong		55	
2197	West side Tennessee avenue, between East Capitol and B streets NE., lots 43 and 44	T. E. Kibley		28.51	
2198	West side Tennessee avenue, between East Capitol and B streets NE., lot 49	Wm. Davis, jr		31.51	
2199	West side Tennessee avenue, between East Capitol and B streets NE., lot 50	J. P. Speecher		55.08	
2200	West side Tennessee avenue, between East Capitol and B streets NE., lots 47 and 48	Lewis Mundheinner		27.61	
2201	West side Tennessee avenue, between East Capitol and B streets NE., lot 42	Jacob Hauser		77.56	
2202	Lots C, D, and E, square 551	S. B. Priest		57.82	
2203	1374, 1376, and 1378 F street NE	Mrs. Carroll		18.26	
2204	231 Q street NW	Union Building Co.		149.35	
2205	Union Building, square 454	H. A. Herbert		25.72	14.08
2206	1612 Twenty-first street NW	Cranford Paving Co.		99.56	69
2207	2301 Brightwood avenue NW	Moore & Barbour		1,301.74	10.40
2208	Both sides Rhode Island avenue, between North Capitol and First streets NW	W. R. Kemp	13		19.66

permit—Continued.

TABLE I.—*Regular*

Job No.	Location.	For whom done.	Grading.	Cement sidewalk.	Curb re-set.
2216	Wisconsin avenue, lots 282, 283, and 284, square 1300.	Wm. A. Custard	Cu. yds.-----	Sq. yds. 78.93	Lin. ft. 66
2217	Wisconsin avenue, lots 284 and 285, square 1300.	John W. Begley	-----	50.79	45
2219	606 Tenth street SW	T. P. Stephenson	-----	14.30	11
2220	608 Tenth street SW	E. B. Cranford	-----	16.62	11
2221	612 Tenth street SW	W. A. Church	-----	15.23	11
2222	616 Tenth street SW	M. T. McKenney	-----	14.15	22.80
2224	North side T street NE, from North Capitol street to Lincoln avenue.	Moore & Barbour	159	207.49	11
2225	West side South Dakota avenue between Twenty-sixth street and Rhode Island avenue.	John M. Henderson	-----	276.12	7.40
2226	Northeast corner Trenton avenue and Eighth street.	Herbert Lewis	-----	63.20	6.20
2227	610 Tenth street SW	Wm. Gibson	-----	15.04	11
2228	614 Tenth street SW	James O. R. Kuhn	-----	16.42	11
2229	1426 Welling place	T. C. Noyes	-----	15.73	-----
2230	1428 Welling place	I. L. Rogers	-----	17.69	-----
2231	1430 Welling place	I. T. Hendricks	-----	16.98	-----
2232	3153 to 3157 Q street NW	Cranford Paving Co.	-----	80.60	89.46
2233	North side T street, between Rhode Island avenue and North Capitol street.	Moore & Barbour	-----	548.40	23.80
Total				15,920	16,764.75 2,450.08

permit—Continued.

Curb set.			Vitri- fied block paved	As- phalt block paved	Cob- ble.	Flag laid.	Flag re- laid.	Brick side- walk paved.	Brick side- walk re- paved.	Gran- ite block.	As- phalt tile laid.	Cost.
6 by 20.	8 by 8.	Old										
Lin. ft.	Lin. ft.	Lin. ft.	Sq. yds	Sq. yds	Sq. yds	Lin. ft	Lin. ft	Sq. yds	Sq. yds	Sq. yds	Sq. yds	\$85.83
												57.20
			2.50									16.43
			2.50									18.59
			2.50									17.28
319.52			2.50									18.13
												638.12
			6.10									313.06
57.40												132.89
			2.50									17.13
			2.50									18.41
												14.70
												16.53
												15.87
820.30												89.48
												1,516.42
4,168.12	6,107.79	321.80	758.81	150	40.50	210	50	1,015.50	49	105	104	35,896.85

TABLE K.—

[Appropriation: Assessment

Job No.	Location.	Grading.	Cement sidewalk.	Curb reset.	Curb set.		
					6 by 20.	8 by 8.	Old.
3001	Alleys in square 225, between Pennsylvania avenue and G, Fourteenth, and Fifteenth streets	Cu. yds.	Sq. yds.	Lin. ft.	Lin. ft.	Lin. ft.	Lin. ft.
		405					
3002	East side Fourth street NE., from South avenue south	75					
3003	North side D street NE., between Tennessee avenue and alley west		259.82		278.90		
3005	East side Fourteenth street, between D and Duncan streets NE	60	229.06		215.93		
3007	Alleys in square 151, north of Willard street	790		30			
3008	South side Erie street, from Fifth street to Brightwood avenue	3,120	1,454.38				74
3009	South side F street NE., from Fourteenth street east		156.90		134		
3010	Both sides Twentieth street, between Woodley road and south property line Cliff farm						
3011	South side Benning road, from Seventeenth to Nineteenth street	45	607.77				
3014	North side D street NW., between Eighth and Ninth streets		140.84	3		96.10	
3015	West side Thirteenth street NW., between C and D streets		437.02	27	364.60		
3016	East side Eighth street, between K and L streets NW		402.69	384		10.85	29
3017	North side R street, between Thirteenth and Fourteenth streets NW		368.54	7		626.14	
3018	East side School street, between Park and south property line S. P. Brown's subdivision		166.48		312.20		
3019	Alleys north and south, block 21, Howard University	224		25			
3020	West side Fourteenth street SE., from E to G		384.73	40.90	514		
3021	Alleys in square 183	205					
3022	Alley, square 342, between Massachusetts avenue and south line of 8-foot alley						
3023	Alleys block 7, Bloomingdale	86					
3024	Both sides Genesee street, between Piney Branch road and Brightwood avenue	874.50					
3025	North side I street NW., between Sixth and Seventh streets		224.45	75	9.42		18
3026	North side M street NW., between Twenty-third and Twenty-fourth streets		379.06			339.02	8
3027	Both sides K street NW., between Fourth and Fifth streets		2,131.85		113.40		4
3028	North side G street NW., between Tenth and Eleventh streets		111.17			51.60	
3029	West side Eighth street SE., between E and G streets		787.76				
3030	South side Pennsylvania avenue NW., between Third and Four-and-a-half streets		1,281.40	461		59.38	
3031	North side Galena street, between Sixth and Seventh streets		396.57				
3032	East side Sixth street, between Emporia and Galena streets	66	443.15				
3033	South side Sheridan street, between Brightwood and Sherman avenues		532.10	16			15
3034	North side M street, between Fifth and Sixth streets NW	284.72		209			26

Assessment work.

and permit work, 1902.]

TABLE K.—Assessment

Job No.	Location.	Grading.	Cement sidewalk.	Curb reset.	Curb reset.			
					Cu. yds.	Sq. yds.	6 by 20.	8 by 8.
3035	North side G street NW., between Fourteenth and Fifteenth streets.		188					
3036	North side P street, between Fifth street and New Jersey avenue NW.		712.50					
3037	North side Bunker Hill road, between Ninth and Fort streets, and Fort street, between Bunker Hill road and Tenth street.	300						
3039	South side E street, between Thirteenth and Thirteenth-and-a-half streets NW.		336.83	141				
3040	East side Thirteenth-and-a-half street, between D and E streets NW.		319.44	92	148.60			
3041	West side Fifteenth street NW., between Rhode Island avenue and alley, north.		87.86				84.35	
3042	West side Third street, R street to Florida avenue, and east side Third street from Q street to Florida avenue.		1,143.15	11.60				
3043	South side East Capitol street, between Second and Third streets.		570.55	343	27			4.40
3045	Both sides Eighth street, from P to Q streets NW.	25					993.28	
3048	Both sides M street, from Seventh to Ninth street NW.				772.42			
3049	Both sides L street, from New Hampshire avenue to Twenty-fourth street.	30					1,213.59	
3051	Both sides O street, Ninth to Tenth street NW.	25					1,072.77	
3052	Both sides P street, from New Jersey avenue to Eleventh street NW.	150					5,694.11	
3063	South side East Capitol street, from Fourteenth to Fifteenth street.						494.73	
3073	Both sides Erie street, from Ontario to Meridian avenue.				1,942.99			
3074	West side Erie street, from Champlain to Ontario avenues.				318.7			
3075	West side Connecticut avenue, from Cincinnati street to Cathedral avenue.						1,140.36	
3077	West side M street, Trinidad, from Twelfth street west.		527.09		814.20			
3078	West side Four-and-a-half street SW., between I and L streets.		1,461.73	591	36.20			
3079	Alley, square 614, between Q street, Florida avenue, and First street.	364		52				
3080	West side Tenth street NW., from D to F streets.		1,287.43					
3081	South side New York avenue NW., from Twelfth to Thirteenth street, and Twelfth street east 138.80 feet, and south side I street, from Eleventh street west.							
3082	Both sides Bladensburg road, from H street to Mount Olivet road.		1,172.21	21			801.50	
3083	East side Twenty-second street NW., from R street to Decatur place.		270.21		234.42			
3084	South side Decatur place, from Twenty-second street to Florida avenue.		407.20		432.56			

work—Continued.

TABLE K.—*Assessment*

Job No.	Location.	Grading.	Cement sidewalk.	Curb reset.	Curb set.					
					Cu. yds.	Sq. yds.	Lin. ft.	Lin. ft.	Lin. ft.	Lin. ft.
3085	South side Euclid place NW., between Fourteenth street and University place.			281.49						
3086	South side E street NW., between Seventeenth and Eighteenth streets.			640.38	147					60
3087	West side P street NW., between Sixth and Marion streets.			298.55						
3088	West side Thirteenth street NW., between Lamar place and Lydecker avenue.			729.68		795				
3089	South side T street, from North Capitol to First street.				45.42	866.26				
3090	West side Fourteenth street, between G street and New York avenue NW.			93.04				47.70		
3091	West side R street NW., between Fifteenth and Sixteenth streets.			584.14	498					14
3092	Both sides A street NE., from Fourth to Seventh streets.							6.15		
3093	Both sides Park place NE., between Eleventh and Twelfth streets.						632			
3094	South side South Carolina avenue, from Eleventh to Twelfth streets SE.						307.52			
3095	Northside U street NW., between First and Second streets.			54	4.30					
3096	West side Twenty-ninth street, between Q and Road streets.			124.89						11
3097	Alleys in block 39 Columbia College grounds.			793						
3098	Alleys, square 447, between Sixth and Seventh, N and O streets NW.			887		47.69		60		
3099	Alley, square 1283, between Twenty-ninth and Thirtieth, Q and U streets NW.			711						
3100	Alley, square 898, running east from Seventh street.			100						
3101	Alley, square 1010, between B and C, Twelfth and Thirteenth streets NE.			84						
3103	Alley, block 5, Kalorama Heights.			544		42	9.43			
3104	Both sides R street NW., from Connecticut avenue to Twenty-first street.			25					732.60	
3105	West side Tenth street NW., from U street to Florida avenue.				1,339.23					
3106	Both sides Adams Mill road, from Columbia road to Zoological Park.					3		695.20		
3107	West side Ninth street, from Providence street to Bunker Hill road, and south side Bunker Hill road, from Ninth street to Baltimore and Ohio R. R.				332.40		445.50			
3108	Side side F street NW., from Sixth to Seventh streets.				523.91	298				9.30
3109	West side Sixth street NE., from L to M streets.				479.47	206				447
3110	East side Sixth street NE., from K to M streets.				764.95	761				276
3111	Both sides Kenesaw avenue from Fifteenth street extended, west.			190	956.01		985			8
3112	East side Connecticut avenue NW., from De Sales to M street.				307.36			184.05		
3113	Both sides Thirteenth street NE., from Maryland avenue to G street.						237.53			
3114	West side Sixth street NE., from H to I street.						390.82			
3118	East side Columbia road, from Florida to Wyoming avenue.			825	898.05			14.30	15.20	

OPERATIONS OF THE ENGINEER DEPARTMENT, D. C.

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work—Continued.

TABLE K.—*Assessment*

Job No.	Location.	Grading.	Cement sidewalk.	Curb reset.	Curb set.		
					6 by 20.	8 by 8.	Old.
3119	Both sides F street NE., from Maryland avenue to Thirteenth street.		<i>Cu. yds.</i>	<i>Sq. yds.</i>	<i>Lin. ft.</i>	<i>Lin. ft.</i>	<i>Lin. ft.</i>
3120	Both sides F street NE., from Fourteenth to Fifteenth street.				850		
3121	Both sides Columbia road and Steuben street, from Sherman avenue to Thirteenth street.				631		
3123	South side B street NE., from Second to Third street.					341.22	
3124	North side S street NW., between Phelps place and Massachusetts avenue.		1,708.34	63		747.55	
3125	South side T street NW., between North Capitol and First streets.		807.67				
3126	North side Kramer street NE., between Sixteenth and Seventeenth streets.			476.11		614.22	
3127	North side B street NE., between First and Second streets.			628.31	627	6.28	
3128	North side Hartford street NE., between Twelfth and Thirteenth streets.			310.20			
3130	East side Tenth street, between Providence and Fort streets.			212.99			
3133	North side D street SE., from Fifteenth to Sixteenth street.		150.71		204.20		
3136	Both sides Ninth street, from Erie to Flint street, Brightwood Park.			299	461.93		12.60
3137	Alley, north half square 850, between Callan and L Sixth and Seventh streets NE.		585		86.26		
3139	North side Providence street, from Fourteenth to Fifteenth street, Brookland.			347.23			
3140	East side Adams Mill road north to Lanier avenue.						236.32
3141	East side Tenth street, between Frankfort and Hartford streets.			119.99			
3143	Both sides Whitney avenue, from Brightwood avenue to Warder avenue.			350	1,555.78	8	1,893.90
3144	Both sides alleys, square 216.		198		54		9.42
3147	Both sides B street NE., from Third to Fourth street.						816.73
3148	Both sides Cathedral avenue.		2,114			7,549	
3149	South side Dover street, from Twelfth street to east line Metropolis View.			104	279.53		409.90
3150	15-foot alley in square 195.				12		17
3152	North side Dover street, from Twelfth to Thirteenth street.			399	410.94		
3153	West side Twelfth street, from Dover to Concord street.				218.37		312.44
3154	Both sides Detroit street, from Twelfth to Thirteenth street.		9,000				
3155	South side Chicago street, from First to east line lot 76, square 720.				303.90	371	9.42
3156	Both sides N street NW., from Fifth to Sixth street.				554.37	499	28.26
3157	Both sides Nineteenth street NW., from R street to Florida avenue.						2,074.70
3158	North side M street NW., from Tenth to Eleventh street.				201.89		
3159	North side M street NW., from Ninth to Tenth street.				427.12	380	

OPERATIONS OF THE ENGINEER DEPARTMENT, D. C.

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work—Continued.

TABLE K.—Assessment

Job No.	Location.	Grading.	Cement sidewalk.	Curb reset.	Curb set.		
					6 by 20.	8 by 8.	Old.
3160	South side M street NW., from Eighth to Ninth street	Cu. yds.	Sq. yds.	Lin. ft.	Lin. ft.	Lin. ft.	Lin. ft.
3161	East side Twenty-first street, from Virginia avenue to E street		295.12	-----	-----	-----	-----
3162	West side Nineteenth street NW., from G to H street		226.66	-----	-----	-----	-----
3163	West side Seventh street, from Q street to Rhode Island avenue NW		478.38	3	425.90	-----	-----
3164	East side Fourteenth street, from T to U street		614.25	3	-----	413.10	-----
3165	East side Sixth street NW., from M to N street		601.72	-----	-----	443.60	-----
3166	East side Fifth street NW., from L to M street		570.97	-----	-----	55	-----
3168	West side New Jersey avenue, between O and P streets NW		545.79	470	-----	-----	64
3169	Both sides Gales street, between Sixteenth and Seventeenth streets		57.40	-----	-----	142.73	-----
3170	Westside Fourteenth street, from F to alley between F and G streets		-----	-----	-----	-----	-----
3171	North side V street NW., between North Capitol and First streets		-----	20	126	-----	-----
3172	East side Sixth street SW., between H and I streets		279.22	286	-----	-----	29
3173	South side East Capitol street, between Fourteenth and Fifteenth streets		356.34	-----	-----	-----	-----
3174	East side Eleventh street NW., between Little B and C streets		688.81	38	-----	-----	-----
3175	North side D street NW., front lots 1, 2, and 11.72 feet of 3, square 227		180.16	141	-----	-----	-----
3176	South side N street NW., between Vermont avenue and Thirteenth street		155.08	-----	-----	130.10	14.4
3177	North side F street, between Eighteenth and United States Government property, Seventeenth street		263.69	-----	-----	276.80	-----
3178	Alley, block 17, Le Droit Park		-----	-----	-----	-----	-----
3179	Alleys in square 186	138	-----	-----	-----	-----	-----
3180	14-foot alley, square 452	52	-----	-----	-----	-----	-----
3181	Alleys, square 1010, between B and C, Twelfth and Thirteenth streets NE	268	-----	-----	-----	-----	-----
3182	Alley, square 1026	1,040	-----	-----	-----	61	-----
3183	Alley, square 855, between Morton and Orleans place and Sixth and Seventh streets	227	-----	20	-----	-----	-----
3184	West side Fourteenth street NW., from L street north, square 215		282.04	-----	-----	205.40	2
3185	West side Fourteenth street NW., from north line lot 90, north to P street		1,458.82	-----	-----	930.76	-----
3186	East side Fourteenth street NW., from N to Rhode Island avenue		740.79	-----	-----	562.75	-----
3187	South side N street NW., from Seventeenth to Eighteenth street		436.60	-----	-----	-----	-----
3189	Westside Fourteenth street NW., between H and I streets		571.88	-----	-----	373.05	-----
3190	South side Florida avenue, between Seventeenth and V streets		123.81	42	121.60	28.26	45
3191	Alley in square 461	51	-----	-----	-----	-----	-----

OPERATIONS OF THE ENGINEER DEPARTMENT, D. C.

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work—Continued.

TABLE K.—Assessment

Job No.	Location.	Grading.	Cement sidewalk.	Curb reset.	Curb set.		
					6 by 20.	8 by 8.	Old.
3194	North side P street NW., between Ninth and Eleventh streets.		Cu. yds.	Sq. yds.	Lin. ft.	Lin. ft.	Lin. ft.
				665.10			13
3195	East side Tenth street, from U to Florida avenue.			906.49			
3198	Northside Meridian avenue NW., between Center street and east end Meridian avenue.	32		216.21		300.20	8
3199	Both sides Gales street NE., between Fifteenth and Sixteenth streets.	1,803.63					
3200	South side P street NW., between Seventh street and alley west of Seventh street.			139.74	21		
3201	South side East Capitol street, between Thirteenth and Fourteenth streets.			565.16	15		701
3202	West side Tennessee avenue NE., from F to Fifteenth street.				18.52	139.94	
3203	North side Bismarck street NE., between Brightwood and Sherman avenues.			666.17			716.20
3204	Alleys in square 962, between Tenth and Eleventh, D and E streets.	1,188			112	18.84	
3205	Alleys in square 1055, between Fourteenth and Fifteenth, B and C streets NE.	1,055					66.84
3206	15 and 30 foot alleys in square 761.	193					
3210	South side Columbia road NW., between Eleventh and Thirteenth streets.	116		93.09			
3211	South side Kramer street NE., from Sixteenth to Seventeenth street.			250.81		613.40	
3212	Both sides Morton place NE., from Sixth to Seventh street.	488					
3213	Both sides Orleans place NE., from Sixth to Seventh street.	1,557					
3215	East side Columbia road, lot 7, Oak Lawn.				11.45		78.65
3217	Both sides Third street SW., from E to F street.	16					646.21
3218	Both sides E street SW., between Third and Fourth streets.	30					1,257.23
3219	Alley in square 159.	46			15	9.42	
3220	Both sides L street SE., between Eighth and Ninth streets.					602.28	
3221	Both sides Fourteenth street NE., between H street and Maryland avenue.						508.70
3222	East side Third street NE., between H and I streets.	63					
3223	West side Kirby street NW., between New York avenue and N street.					469	
3224	Both sides Sixteenth street NE., from Gales to Rosedale.	30				541	
3225	Alleys in square 449.	215					
3226	East and west 10-foot alley in square 672.	296					
3227	Alleys in east half square 444.	531			50	28.26	
3229	West side Fourteenth street SE., between G street and Pennsylvania avenue.				187.98	28.80	245.20
3233	Southside Hartford street NE., between Tenth and Twelfth streets.				277.71		
3234	South side S street NW., from Twenty-second to Phelps place.				1,725		

work—Continued.

Vitrified block paved.	Asphalt block paved.	Cobble.	Asphalt tile relaind.	Flag laid.	Flag relaind.	Brick sidewalk laid.	Brick sidewalk relaind.	Granite block laid.	Cost.
Sq. yds.	Sq. yds.	Sq. yds.	Sq. yds.	Lin. ft.	Lin. ft.	Sq. yds.	Sq. yds.	Sq. yds.	
									\$634.21
									856.55
									651.14
									1,700.72
									135.41
									1,263.83
		6					12		151.31
									1,546.99
	1,002	18			54		30		2,214.60
1,055				20			2		1,728.13
159									1,303.71
									123.45
									941.33
									a 39.00
									a 120.25
							9		98.68
									769.65
	1,065								1,490.37
									1,778.84
									620.00
									498.66
						100	14		103.81
									492.41
	3,036								540.04
									5,121.72
252	889.20								485.69
									1,782.46
									449.05
									312.01
									a 491.91

a Not completed.

TABLE K.—*Assessment*

Job No.	Location.	Grading.	Cement sidewalk.	Curb reset.	Curb set.						
					Cu. yds.	Sq. yds.	Lin. ft.	Lin. ft.	Lin. ft.	Lin. ft.	
3237	South side O street NW., between Ninth and Tenth streets					107.96					
3238	South side O street NW., between North Capitol and First streets					282.16					
3239	Both sides First street SE., from M to N street							1,365			
3240	Alleys in block 2, Trinidad	2,260						94.84			
3241	Alleys in square 877, between E and G, Sixth and Seventh streets SE	895									
3248	South side Rosedale street, between Sixteenth and east line lot 34					250.86		348.70			
3251	Alleys in block 3, Washington Heights	2,850									
3252	Alleys in square 972, between Pennsylvania avenue and D, Tenth and Eleventh streets	289					34.00				
3253	North side Harvard street NW., between Eleventh and Thirteenth streets					565.33	175.00	559.60			4
3255	West side Twentieth street, extended, from Columbia road to Wyoming avenue	200							112.75		
3257	South side Adams Mill road from Columbia road to Zoological Park					897.69					
3258	California avenue, near Eighteenth street, Washington Heights										
3259	North side California avenue NW., between Eighteenth street and Florida avenue					33.62					
3262	North and south side Highland avenue and south side Newark street, between Highland and Connecticut avenues	400				928.13				736	
3263	Both sides Ingraham street, between Brightwood and Colorado avenues								1,812.10		
3264	Both sides Seaton street NW., from Seventeenth street to Florida avenue								818		
3269	Both sides Hanover street, from North Capitol street to alley							189.94	300.06		
3270	East side Half street SW., between N and O streets	32				257.25	11		422.38		
3271	South side U street, Florida avenue NW., between Seventeenth and Eighteenth streets					909.37					
3275	East side Tenth street NE., between Lansing and Providence streets					213.39					
3276	Both sides Swann street NW., between Sixteenth and Seventeenth streets					389.64			695.62		
3287	North side F street NE., from Elliott street westward					148.95					
3288	West side Fifteenth street NW., between Q and alley, north					119.98			127.61		
3013	Both sides Fourth street NW., from G to K streets	65							2,621.26		
4550	Both sides Elm street, from Third to Four-and-a-half streets								908.61		
5254	Both sides Connecticut avenue, between California and Wyoming avenues								748.03		
1502	Both sides Q street, from Third street to Florida avenue								1,614.63		
1507	Both sides First street NW., from Q street to Florida avenue								700.68		
1513	South side O street NW., from North Capitol to First street								853.72		
1708	South side E street SE., from Tenth to Eleventh street							2.50	244.96		

work—Continued.

Vitrified block paved.	Asphalt block paved.	Cobble.	Asphalt tile replaced.	Flag laid.	Flag replaced.	Brick sidewalk laid.	Brick sidewalk replaced.	Granite block laid.	Cost.
Sq. yds.	Sq. yds.	Sq. yds.	Sq. yds.	Lin. ft.	Lin. ft.	Sq. yds.	Sq. yds.	Sq. yds.	
									\$100.88
									286.21
									1,394.43
									4,162.21
280	1,310								2,831.70
									667.24
									3,129.47
									1,069.46
									1,269.24
									198.55
									953.62
									^a 492.66
									33.28
									1,987.24
									2,004.06
									735.86
									518.41
									685.60
									849.81
									239.75
									1,047.64
									142.34
									202.63
									3,217.96
									1,039.28
									818.56
									1,798.27
									768.30
									984.01
									290.86

^a Not completed.

TABLE K.—*Assessment*

Job No.	Location.	Grading.	Cement side- walk.	Curb reset.	Curb set.		
					6 by 20.	8 by 8.	Old.
1812	Both sides Fifth street NE., between D and F streets.			Cu. yds.	Sq. yds.	Lin. ft.	Lin. ft.
4450	Both sides Huntington place, from Fourteenth to University place					1,281.87	4.23
4650	Both sides Gales street NE., from Fifteenth to Seventeenth streets						917.43
1711	Both sides Fifth street SE., between G street and Virginia avenue					2,238.75	
1811	Both sides G street NE., between First and Fourth streets.					1,240.74	
1814	West side Fifteenth street NE., from E to G and east side Fifteenth street from south line lot 44.					234.57	1,461.34
1815	Both sides East Capitol street, from Thirteenth to Fourteenth streets					10.90	755.48
3292	North side V street NE., between Third and Fourth streets			207.46			
3293	Sixth street NE., between H and I streets, lots 44, 45, 48			35.57			
3294	South side Meridian avenue, between Center street and property line east	68	218.05			370.75	
3295	East side Fourteenth street SE., between G street and Pennsylvania avenue			155.67		236.62	17.80
1511	Both sides Twenty-third street, between G and I streets NW						1,506.37
1509	East side Seventeenth street NW., T street to Florida avenue						847.99
	Total.			42,856.91	56,548.74	8,264.34	42,328.31
						45,772.05	2,314.14

work—Continued.

Vitrified block paved.	Asphalt block paved.	Cobble.	Asphalt tile relaind.	Flag laid.	Flag relaind.	Brick sidewalk laid.	Brick sidewalk relaind.	Granite block laid.	Cost.
Sq. yds.	Sq. yds.	Sq. yds.	Sq. yds.	Lin. ft.	Lin. ft.	Sq. yds.	Sq. yds.	Sq. yds.	
									\$1,443.61
									1,053.30
									2,320.95
									1,365.03
									2,957.32
									1,974.42
									850.36
									236.22
									35.11
									668.61
									394.33
									1,851.51
									995.86
9,210	17,945.70	349	200	20	54	745	177		221,875.27

TABLE L.—Replacing and repairing sidewalks and curbs around public reservations.

55.41	Nineteenth street, between Wyoming avenue and Columbia road
62.12	California avenue and Columbia road
151.14	Florida avenue side reservation, Seventeenth street and Florida avenue
142.70	South side Whitney avenue, between Sherman and Brightwood
205.93	North side Biarritz street, lots 6 and 7, Todd and Brown's subdivision
923.38	Pennsylvania avenue and Third street sides reservation 37 SE
13,826.28	Total

TABLE M.—*Miscellaneous work, 1902.*

Job No.	Location.	Appropriation.	Grading.	Curb reset.	Cobble, 6 by 20.	Curb set, 8 by 8.	Old.	Asphalt block roadway.			Cost.				
								Cu. yds.	Lin. ft.	Sq. yds.					
501	Streets in Woodbridge										\$100.20				
510	Retaining wall, Rock Creek										91.07				
510	Quarry road bridge, 1901										5.62				
507	Street bridge across Rock Creek										80.81				
508	Street bridge across Rock Creek										17.13				
510	Bladensburg road, 1901										86.06				
510	Chemical engine company, Brookland										55.67				
513	Engine house, Brookland										642.28				
524	Quarry road bridge, between Cathedral avenue, 1901										1,214.96				
529	Woodley road and Connecticut avenue, Brookland										376.20				
530	Engine house, Brookland										384.32				
535	Massachusetts avenue arch, Quarry road bridge, 1901										85.02				
538	Block 2, University Heights										28.50				
525	Cathedral avenue, between Cincinnati street and Woodley road										685.16				
526	Massachusetts avenue bridge										167.37				
570	W. street, for fill over Massachusetts avenue arch, west of Rock Creek										26.00				
572	Massachusetts avenue, west of Rock Creek										3.75				
574	Massachusetts avenue east of T street										6.00				
580	Connecticut avenue bridge										84.62				
582	do														
	Total							5,687	120	1,192	210	183	47 $\frac{1}{2}$	150	4,071.34

TABLE N.—*Whole cost of work.*

Job No.	Location.	Depositors.	Curb set.		Vitrified brick roadway.	Cost.
			6 by 20	8 by 8		
6023	1801 Massachusetts avenue NW.	Mrs. H. Wadsworth	Lin. ft. 9.42	Lin. ft. 9.42	Sq. yds.	\$23.64
6033	Twelfth street, between E and F streets SW.	Southern Rwy. Co				6.50
6036	3130 Fourteenth street NW.	Fred. Warther			3	6.99
6037	Quarry Road bridge	Geisel Cons. Co.				81.94
6040	Woodley Lane bridge	Thos. M. Bond				9.95
6041	909 Seventh street NW	Chas. Xander				1.50
3518	Anacostia bridge	Washington Traction and Electric Co.				291.90
6032	Cincinnati street and Connecticut avenue.	H. P. Waggaman				425.00
6034	Highland avenue	Mrs. Sarah M. Westcott				250.00
						1,097.42

TABLE O.—*Number of square yards and cost charged for repairs to cuts made by plumbers and others in streets, avenues, and alleys during the fiscal year ended June 30, 1902.*

Item No. 1 shows the number of cuts repaired for various plumbers.

Item No. 2 shows the number of cuts repaired and the cost thereof on "Whole cost" work to which 5 per cent is added for tools, clerks' hire, etc., for the maintenance of the deposit and assessment fund, which fund is used to pay all accounts for labor, material, tools, etc., used in this class of work, and also includes the work done for gas, electric-light, and telephone companies, which is charged at the flat rates charged to plumbers.

Item No. 3 shows the number of cuts repaired on account of the sewer department and the cost of the same.

Item No. 4 shows the number of cuts repaired on account of the water department and the cost of the same.

Item No. 5 shows the number of cuts repaired and work done on account of other appropriations of the District and the cost of the same; also the cost of work charged against retents and appropriations of the General Government.

	Number.	Square yards.	Cost (amount charged).
Item No. 1.—Plumbers' cuts:			
Sheet asphalt	231	660.47	\$2,080.47
Granite block	118	452	610.20
Asphalt block	279	691.50	933.52
Vitrified block or brick	147	558	733.30
Cobblestone and rubble	191	416.32	166.53
Macadam	104	177	163.37
Granolithic	93	288.40	648.90
Brick sidewalks	933	8,761	1,867.37
Item No. 2.—Washington Traction and Electric Co., gaslight companies, and other corporations	2,096	12,004.69	7,223.66
Item No. 3.—Various appropriations of the sewer department	1,121	33,416.20	23,515.68
Item No. 4.—Various appropriations of the water department	496	12,261.39	18,320.39
Item No. 5.—Various appropriations other than the above, including repairs to streets and roads, street lighting, electric department, improvements and repairs, assessment and permit work, etc.	438	6,416.10	5,020.32
Total	4,389	71,319.50	62,903.24

TABLE P.—*Grading streets, alleys, and roads, 1902.*

Job No.	Location.	Gravel.	Grading.	Cost.
		Sq. yds.	Cu. yds.	
1900	Thirteenth street NE., between C and Emerson.....		2,376	\$464.50
1902	Sixteenth street NE., from A to B streets.....		313	51.69
1903	M and N streets, from Twelfth to Baltimore and Ohio R. R.....		11,196	1,655.36
1907	Duncan street, from Fourteenth street east.....		482	84.69
1908	Block 26, Petworth.....		2,958	534.25
1909	Duncan street, between Fourteenth and Fifteenth.....	342	48	32.87
1913	C street, between Fifteenth and Seventeenth SE.....	1,472		100.56
1914	E street NE., between Twelfth and Fourteenth.....			7,250
1916	Warder avenue, between Whitney avenue and Rock Creek Channel road.....			1,284 99.56
1917	D street NE., between Fourteenth and Fifteenth streets.....		3,904	452.50
1918	Duncan street NE., between Fourteenth and Fifteenth.....		108	9.50
1919	E street NE., between Fourteenth and Fifteenth.....		723	123.12
1920	Hancock, McClellan, and Steuben streets.....		5,018	598.38
1923	Florida avenue west of Twenty-second street.....		764	97.63
1924	Madison street west of Thirty-fifth street.....		315	28.50
	Total			5,930.24

REPORT OF THE SUPERINTENDENT OF COUNTY ROADS.

WASHINGTON, July 1, 1902.

SIR: I have the honor to submit report of the operations of the county road division during the fiscal year ended June 30, 1902.

MORRIS HACKER,
Superintendent of Roads.

The COMPUTING ENGINEER,
District of Columbia.

Respectfully transmitted to the Engineer Commissioner, District of Columbia, through Capt. H. C. Newcomer.

C. B. HUNT,
Computing Engineer.

Expenditures for repairing county roads and suburban streets, fiscal year 1901-2.

Job No.	Location.	Cost.
SECTION I.		
4016	Blagden Mill road	\$3,614.15
4029	do	1,940.88
4038	Newark street	40.90
4057	Connecticut avenue	191.00
4070	Nebraska avenue	4,454.26
4071	Woodley road	967.17
4084	Military road	3,352.30
4090	Highland avenue	7,280.25
4102	Belt road	266.78
4115	Broad Branch road	638.73
Dangerous holes and minor repairs		
	Total	22,776.42
		5,949.85
		28,726.27
SECTION II.		
4008	Brightwood avenue, front of cemetery	64.75
4009	School street	959.69
4010	Vermillion street	1,858.47
4012	Ontario avenue	99.13
4013	Eighth street NW., north of Florida avenue	74.75
4014	Chesapeake street	63.80
4015	North Capitol street	1,181.07
4024	U street, North Capitol to First street	362.89
4025	V street, North Capitol to First street	1,413.51
4026	Utica street	146.40
4027	Central avenue	199.50

Expenditures for repairing county roads and suburban streets, etc.—Continued.

Job No.	Location.	Cost
SECTION II—continued.		
4028	S street, between First and Second	\$128.77
4031	Brightwood avenue	5,921.40
4039	Bunker Hill road	181.89
4041	Michigan avenue	600.92
4046	Whitney avenue	316.94
4056	Lincoln avenue	175.67
4086	Third and Oak streets	39.50
4087	Park street	132.07
4098	Seventh street, Metropolis View	36.13
4100	Blair Lee road	581.82
4118	Twenty-second street, between R and Decatur	243.93
4140	Paving alleyway, Whitney avenue	38.14
4160	Hancock, McClelland, and Stenben streets	138.00
4183	South side W street NW, between First and Second streets	40.84
4190	Warder avenue	28.75
4199	Florida avenue	34.50
4217	Thomas street	74.18
	Dangerous holes and minor repairs	18,087.41
		7,549.69
	Total	25,637.10
SECTION III.		
4007	Baltimore street, Winthrop Heights	6.25
4017	Twelfth street, Brookland	601.73
4040	Tenth street, Brookland	138.56
4049	M street (Robt. Morris subdivision)	65.25
4059	Twenty second street, Langdon	511.03
4110	Bunker Hill road	2,719.10
4132	Detroit street, Brookland	2,015.65
4167	Blair road	109.24
	Dangerous holes and minor repairs	6,166.81
		4,849.28
	Total	11,016.09
SECTION IV.		
4011	Livingston road	301.49
4032	Bennings road	428.23
4045	Nichols avenue	1,091.75
4133	Morris road	294.77
4159	Cross road, west site for Good Hope school	49.60
4168	Wheeler road	171.90
	Dangerous holes and minor repairs	2,337.76
		4,095.86
	Total	6,433.12

RECAPITULATION.

Section I	\$28,726.27
Section II	25,637.10
Section III	11,016.09
Section IV	6,433.12
Total	71,812.58
Salaries	3,442.00
Hire of horse and buggy	313.00
Blacksmithing	518.63
Purchase of tools and water wagons	2,266.95
Purchase of cobble, gravel, pipe, cement, etc	994.22
Breaking stone and miscellaneous labor	651.31
Total	79,998.69
Amount of appropriation	80,000.00
Balance of appropriation	1.31

NOTE.—Section I is the territory west of Rock Creek; Section II is the territory between Rock Creek and Metropolitan Branch, Baltimore and Ohio Railroad; Section III is the territory between Metropolitan Branch, Baltimore and Ohio Railroad, and Anacostia road; Section IV is the territory south and east of Anacostia.

REPORT OF THE ENGINEER OF BRIDGES.

WASHINGTON, D. C., July 1, 1902.

SIR: I have the honor to submit the following report for the fiscal year ended June 30, 1902:

The expenditures under "Ordinary care of bridges" were as follows:

Amount of appropriation	\$4,000.00
Salaries	3,870.64
Coal, oil, and contingencies	33.13
Paint purchased	93.60
Balance	2.63
Total	4,000.00

Keepers were stationed at the Aqueduct Bridge, across the Potomac, and the Pennsylvania avenue and Navy-Yard bridges, across the Eastern Branch. At the last-named structure the operation of the draw requires a keeper and helper, and at the other two the demands of the public convenience justify their retention.

The work of "Construction and repairs" is shown by the annexed table.

Expenditures, "Construction and repair of bridges, 1902."

Job No.	Bridge.	Character of work.	Cost.
3500		Various bridges	\$25.62
3501	85	Construct culvert (Seventeenth and Lowell streets)	25.22
3502		Various bridges	125.19
3503	35	Repair	8.56
3504	55	Relay floor (Anacostia Bridge)	3,430.97
3505	17	New joists and flooring	71.26
3506	61	do	70.43
3508	34	Paint railing	40.41
3509		Various bridges	77.58
3514	1	New floor and joists (Chain Bridge)	3,614.85
3520	52	Rebuild masonry (Bennings road bridge)	822.04
3521		Various bridges	67.00
3522		do	23.18
3523	36	New floor	197.85
3524		Various bridges	103.25
3525		do	33.24
3527		do	1.00
3528		do	28.53
3531		do	46.41
3532		do	51.44
3533		do	104.67
3534	20	New floor	409.88
3535	6	New floor and joists	69.65
3536		Various bridges	174.91
3537	31	Paint superstructure	451.27
3538	223	Rebuild culvert (Brightwood avenue, north of Xenia)	503.59
3539		Various bridges	7.75
3541	64	Repair floor	74.46
3542	69	Repair	41.32
3543	84	Reconstruct joist and flooring	67.44
3545		Various bridges	89.01
3546		do	119.28
3540	54	Lumber for new floor (now being delivered)	5,500.00
		Total	16,546.26

The regular repairs consisted of painting the ironwork, removal of floors, and such minor repairs as were from time to time necessary. The structures, excepting the Anacostia Bridge (No. 55), are in a safe condition, requiring only such repairs as are due to their use.

The Anacostia Bridge (No. 55) has been structurally weak, and, since the employment of the heavy motor cars of the Anacostia and Potomac River Railway Company, particularly so.

The electric cars which now cross the bridge weigh, when empty, between 7 and 10 tons, and when loaded with people this load reaches a maximum of 17 tons. The bridge was not designed to carry such a heavy load. In addition, the draw is archaic, the bridge unsightly, much too narrow (the entire width of roadway being taken up with car track), and totally inadequate to meet the demands of public travel, in consequence of which I have the honor to recommend that it be replaced with

a modern structure of ample width. This recommendation has been made each year since 1887, and the conditions described in each of the several reports are to-day aggravated. The present bridge was constructed in 1875. Its condition is notoriously bad and worthy of serious consideration. The inadequacy of this bridge for vehicular travel is indicated by the following comparison of the number of vehicles crossing the three river bridges under my supervision, between the hours of 8 a. m. and 5 p. m. The vehicles were counted by the several bridge keepers each Saturday from April 1 to May 31, inclusive, and the numbers here tabulated are the mean of the counts.

Anacostia Bridge (vehicles, not including 160 electric cars)	1,300
Aqueduct Bridge (vehicles, no cars)	1,100
Pennsylvania avenue bridge (vehicles, no cars)	200

Particular attention is called to the condition of the railings on the Anacostia Bridge, which are in very bad condition and are rapidly becoming unsafe. The cast-iron bases are badly rusted and cracked. The fence is largely held together with wire. Two cast-iron shoes are cracked, one so badly that I found it necessary to prop up the span (first span reckoning from the Washington side) with timber until a new casting can be purchased and placed. The bridge should be rebuilt; it can not be strengthened. I have to suggest that an appropriation of \$100,000 be requested to immediately begin the reconstruction of the bridge, with authority to contract for the completed structure under a limited total cost of \$300,000. If the bridge is not built next year it will be necessary to replace the present railing at an estimated cost of \$5,000.

The principal items of expenditure under the appropriation for the "Construction and repair of bridges" consisted in laying new floors on bridges No. 1 (Chain Bridge), No. 55 (Anacostia Bridge)—the timber was purchased from last year's appropriation—and the purchase of lumber for No. 54 (Pennsylvania avenue bridge across the Eastern Branch), amounting together to \$12,554.82.

From a cursory glance at the accompanying tabulation it is apparent that the appropriation of \$15,000 is not sufficient to repair the existing bridges. We find it necessary to delay repairs to the floors of all bridges until such time as they are approaching the danger limit.

A bridge floor should never be as rough as the paved roadways which approach it. Considerable complaint is lodged at this office on account of the excessive roughness which obtains at several of our bridges. Persons driving across them experience much discomfort and are practically forced to walk their horses drawing carriages and other light vehicles. The most serious point at issue, however, is the injury to the superstructures, which necessarily suffer on account of the heavy vibratory strains induced by the passage of heavy vehicles over the rough surface.

Attention is called to the police regulation which reads in part: "That no vehicle and its load which exceeds 6 tons shall be permitted to cross any bridge without a permit in writing from the Engineer Commissioner." This regulation is essential under the existing conditions. But it appears that in the case of bridges on main thoroughfares where heavy loads frequently cross in excess of that permitted by the regulations, such as the Rock Creek bridges, on the line of M and P streets, that the roadways should be amply strong to carry the heavier loads. The sub-structure and superstructure of the bridges are ample to carry a buckle-plate-asphalt floor and to permit loads up to 15 tons to cross in safety. It appears poor economy to have the aforesaid bridges, which cost approximately \$100,000 each, with floors so structurally weak that one-half the value of the bridge is lost to the public use. The estimated cost of a first-class floor for the P street bridge is \$4,000 and of M street is \$5,500. Both estimates include the roadway between rails; also the sidewalks.

K street bridge, crossing Rock Creek, is structurally weak and will not permit of strengthening, but should be rebuilt as soon as possible. The estimated cost of reconstructing the K street bridge is \$20,000.

The three bridges which connect the city proper with Georgetown are deemed particularly important on account of the constantly increasing heavy travel from the water front. The cost of maintaining a concrete asphalt roadway and cement walks on the P street bridge is estimated at \$35 per annum and that of the present wooden ones at \$150 per annum. The cost of maintaining a concrete asphalt roadway and cement walks on the M street bridge is estimated at \$42 and that of the present wooden ones at \$25.

The principal bridge constructed during the fiscal year was the boulder-faced bridge across Rock Creek on the line of Beach drive in Rock Creek Park. The bridge was designed in the office under the direction of Capt. Lansing H. Beach

and Mr. William P. Richards. The total cost of the bridge was \$17,635.77, which was paid from the appropriation for the care and improvement of Rock Creek Park. The bridge was built of concrete, incasing 9 lattice girders, and was faced throughout with bowlder stones. The adoption of the bowlder facing was determined by the character of the stream and the natural surroundings of the site. The bridge is thought unique because of its large span for a bowlder bridge and also because of the size of the bowlders used. Reference is here made to the Engineering News of August 14, 1902, should the details of the construction of the bridge be of interest to this office at any future time. The bridge was built by Messrs. Talty & Allen, of this city, contract No. 3034.

The Massachusetts avenue bridge masonry was completed at a total cost of \$132,005.82, the work having been executed under two contracts. The first contract, with the Cranford Paving Company, contract No. 2626, amounted to \$20,248.76, and was completed December 24, 1900. The second contract, with the Brennan Construction Company, contract No. 2787, amounted to \$111,757.06, and was completed December 16, 1901.

Work of grading Massachusetts avenue west of Rock Creek is now being carried on by Cogan Brothers & Forschner. This work was begun January 4, 1902, and will be completed January 4, 1903. One hundred and thirty thousand cubic yards of earth have been placed over the arch. Since this contract was entered into Congress has appropriated \$10,000 for raising the grade of the roadway and wing walls of the culvert on the line of Massachusetts avenue across Rock Creek. The grade is to be raised 10 feet at the bridge and 10 feet at the circle. The Massachusetts avenue bridge balance at present is \$51,433.25. When the grading work is executed there will be a balance of about \$27,000, which will be ample to build the parapets and improve the roadway.

All the foundations for the Connecticut avenue bridge, from piers 2 to 9, inclusive, under Mr. Morison's plan, have been built up to about 3 feet of the springing line. The present balance for the Connecticut avenue bridge is \$61,907.36. No work toward the completion of this bridge has been done this summer, as there has been no authorization to enter into a contract for the finished bridge, and the question of the total cost of the work is still indeterminate. Before the work may be prosecuted further the kind of facing must be determined upon, as the total cost of the bridge is necessarily contingent upon the same. It is thought that \$200,000 should be appropriated for the coming year for the Connecticut avenue bridge in order to build the bridge up to the actual springing lines of the arches. The balance now on hand will complete the foundations for piers 1 and 10 and also the foundations of the two abutments and leave a balance of about \$40,000, which might properly be used in building one of the piers to the springing line.

Especial attention is called to the condition of the Anacostia Bridge and the K street bridge, and the inadequacy of the appropriation for "Construction and repair of bridges." There are at present 20 small wooden bridges, of small span, which should be replaced by masonry culverts. The insufficiency of the appropriation prevents the elimination of these timber structures, with a resultant loss to public economy.

An appropriation of \$25,000 for the "Construction and repair of bridges" is urgently needed, instead of the appropriation of \$15,000 made last year. This appropriation was reduced from \$20,000 to \$15,000 several years ago.

Respectfully submitted.

W. J. DOUGLAS,
Engineer of Bridges, District of Columbia.

THE COMPUTING ENGINEER, DISTRICT OF COLUMBIA.

Respectfully transmitted to the Engineer Commissioner, District of Columbia, through Capt. H. C. Newcomer.

C. B. HUNT,
Computing Engineer.

REPORT OF THE SURVEYOR.

WASHINGTON, D. C., July 15, 1902.

SIR: Pursuant to your instructions of July 1 last, I have the honor to make the following report of the operations of the surveyor's office during the fiscal year ended June 30, 1902, and also the following suggestions as to means of improving the efficiency of the same:

The year has been a very busy one, especially during the months of March,

April, and May, the recent changes in the building regulations being responsible for a considerable part of the work. The requirement of an official plat of each lot to be used as the site of a building has caused the making of 749 plats of single lots or groups of lots. The requirement of a survey in all cases to verify the location of new walls in process of erection has caused the making of 282 surveys. As the new regulations went into effect March 1, complete annual figures are not attainable as to the effect in the number of plats and surveys, but enough is known to amply justify the adoption of these two requirements. Probably 15 cases of errors of builders in location of party walls were discovered before it became difficult to correct the error. The effect is excellent; it is to see that the permit granted is adhered to perfectly in the matter of location and that the adjoining land, including public streets, etc., is protected from encroachment. In addition, the system provides very considerable protection to this office, which has now an opportunity to correctly reset points of survey which during building operations may be jammed out of true position, with the natural result as to walls built thereupon.

In connection with the plan submitted some months ago by this office to assist the assessor in the definite designation of all parcels of suburban land, it is deemed proper in this report to show the constantly increasing necessity for a series of plats, showing constantly, up to date, the subdivisinal condition of each block of the city. These can be made up from the original papers of subdivision as they come in day by day in pencil, on a basis of the condition at any one time, drawn in ink. This will, of course, not include parcels cut out by metes and bounds by deeds, but it will be a step in the proper direction, and as far as is now possible to go, in the absence of legislation requiring the registration in the surveyor's office of a number for each parcel so cut out by deed, before the recording of said deed. I regard this, under our system, as the only means of supplying the assessor's office with the designations he needs, and the plan should include the whole District. I do not believe there is any real difficulty in carrying out such a plan, once having the plats prepared as suggested. At present, in the city at least, it is impossible to get on one sheet the subdivisinal condition of any square, several record books having to contribute to the result. The need of this reform is felt chiefly by the various departments of the municipal administration, whenever the opening or condemnation of an alley is desired, and in any case where the true relation of a lot or group of lots is desired, in reference to other lots or an alley, etc.

The incessant demand upon the office force for the most imperative current work has prevented any beginning on this comprehensive plating so far, but it will be undertaken whenever opportunity is afforded. In this connection, I think it would be conducive to the public interest to permit the preparation without cost to owners of plats of subdivision in all cases of "part lots," which are carried on the assessor's books as such, or which appear therein according to the description by metes and bounds. I refer at this time specifically to property in the city proper, or in recorded subdivisions of suburban land. The loss of revenue in fees, which would result, ought not to weigh against the benefit resulting to the various District offices in the simplification of records and accounts. At present, except in the ordinary course of business in preparation for building, but little is done toward ridding the records of these indefinite designations. Under an order of the Commissioners, dated October 7, 1896, the assessor's office issues a blank form, to be signed by the owner in exceptionally troublesome cases, showing the willingness of the owner to sign a subdivision in regular form, the latter to be free of expense. This form is availed of at the instance of the surveyor and of the inspector of buildings, in frequent cases where by doing so objections to subdivision may be overcome, and the question naturally arises, "Why not place all such cases on the same footing?" It is thought that an order remitting all fees in such cases should be widely made known through the press, and owners should be encouraged and invited to avail themselves of such facilities. This should also include cases of duplication of designation. There are now some 1,300 cases of duplication of designation, and even some cases of triplication, in the same square, leading to all sorts of errors and confusion.

This office has steadfastly held to the view that the existing act of Congress, which was intended to secure definiteness in all property designations in the District, is impracticable of execution, on the well-known principle that the owner's consent is essential to a change of designation of his property. It is believed that the assessor's office is fully in accord with this office on this question. No new legislation is needed to cure existing cases, except sufficient provision in the appropriation bill for the additional office force to make up the papers for action in the ordinary manner, in the case of all existing duplications and "part lots."

The resurvey of the Barry farm is not yet completed because of interruption; the work of current surveys of suburban lots for immediate building purposes and the surveys of large tracts being considered improper to delay. It is hoped, however, to complete the entire subject in the near future.

The action of the recent Congress in providing for the year 1903 nearly the amount of money asked for by this office is most encouraging. For the first time in four years an urgent deficiency appropriation will not be needed to carry on the work and prevent the paralysis to all building operations, which would result from the closing down of the office early in the spring.

Appropriation having been made therefor, a considerable addition will be at once made to the metal map cases, etc., now in the record vault, whereby space enough will be secured to tide over the several years of construction of the new municipal building.

Many old maps of great value, relating to the earliest surveys of the city, will be photolithographed during the coming autumn, and thus preserved from destruction as to their essential data. It is intended to furnish the Library of Congress and the office of public buildings and grounds with copies of these lithographs. An interchange between the latter office and this office of photolithographic copies of all important old maps and other records held by each as custodian would largely solve the problem presented by the absence from each collection of the data in the others. The appropriation of \$300, secured from the last Congress for this purpose, is an earnest of the position of this office, which is believed to be heartily reciprocated by the officer in charge of public buildings and grounds.

The appropriation of \$2,000 for the resurvey of the Beatty & Hawkins Addition to Georgetown, now available, will be expended in obtaining, first, a very accurate map of all existing holdings and physical conditions in the tract, and second, in endeavoring to secure the largest possible concurrence in existing conditions of boundaries by the owners involved, confirmed by the exchange of quitclaim deeds, so as to make the new map the sole basis of reference hereafter. It is believed that this annoying question, which has made all sorts of trouble since 1769, will thus be relegated to the rear. At present there is nowhere a correct topographical map of the tract, or any part of it, and as to record, the less said about it the better. When an owner subdivides, plats, and conveys to others 165 feet more frontage in three separate tiers of lots than really exists on the ground, it is not surprising that some confusion should result.

Two projects still remain wherein special surveys are necessary to secure good results. The first of these is a complete clearing out of the entire boundary line of the District, much of which has been overgrown with heavy timber and obscured in various ways for a century. An appropriation of \$1,500 is needed for this, which should include the placing of monuments on each side of all roads intersected by the District line and also at all salient points of hill and valley, to enable this important line to be easily picked up at any time and followed from point to point. This matter is important in the capture of fugitive criminals, etc. The other project is the restoration of the original monuments at the corners of the blocks in the extreme eastern section of the city, these points having been largely destroyed during the civil war. This would cost about \$1,000. One or both of these matters should be provided for at the coming session of Congress.

I renew my urgent appeal for action determining the true status of the Eastern Branch water front. I do not know to what extent the matter of property rights in this locality will be taken up in connection with the survey authorized by the last Congress to be made by the War Department, but presume that this survey will relate chiefly to the question of the deepening of the channel and the reclamation of shoals adjacent thereto.

The following table shows in detail the work of the office:

<i>For private parties.</i>		
Individual lots surveyed		1,249
Certificates of survey:		
Issued		830
Recorded		830
Surveys made to verify walls		282
Large tracts surveyed and subdivided		9
Subdivision blanks:		
Prepared		413
Duplicated for assessor		413
Subdivisions recorded in books		413
Plats to accompany applications for building permits		749

Plats made preliminary to surveys, new and old	1,249
Miscellaneous plats, large and small	80
Estimates issued in triplicate	1,349
Total of plats for private parties	5,004
Total of fees charged and paid to collector of taxes	\$8,652.40

For the District of Columbia.

Surveys made and certified	44
Copies of above certificates retained	44
Plats recorded	39
Indorsements made on communications	681
Reports on various subjects	125
Plats with reports	50
Retained copies of above plats	50
Points of survey referenced	32
Total of plats for District of Columbia	227

Miscellaneous.

Letters written to engineer department and private parties	397
Entries of all sorts on order book	1,649
Telephone calls, average per day, 17	5,100
About one-third of time of clerks in record room taken up in answering questions and giving information to the public	
Total of surveys, public and private	1,156
Total of plats, public and private	5,231

The above table shows increases over last year as follows: Fifty per cent as to individual lots for private parties, besides 282 surveys to verify walls; 26 per cent as to subdivisions recorded; 24 per cent as to plats.

Increases are noted in almost every division of the work of the office, and an average of the three percentages above noted (covering the bulk of the work), or 33 per cent, is practically the same as the general average found by the same method at the close of the last fiscal year (ending June, 1901).

This ratio of increase of each year's work over the preceding has obtained now for three or four years and is indicative of the growth of the District and the increasing use made of the office facilities by the public. It also shows that the office force must be maintained, commensurate in numbers and efficiency with the growing work.

It has been found increasingly necessary to enrich the already complete and valuable card index of every important matter in the office by a separate index of building restriction lines.

In conclusion, I wish to express my sincere appreciation of the excellent and conscientious work done by each and every member of the personnel of the office, without which the total of work above indicated could never have been turned out.

Very respectfully,

HENRY B. LOOKER,
Surveyor, District of Columbia.

Maj. JOHN BIDDLE,

Corps of Engineers, U. S. Army.

Engineer Commissioner, District of Columbia.

(Through Captain Newcomer.)

REPORT OF THE SUPERINTENDENT OF PARKING.

WASHINGTON, D. C., August 19, 1902.

SIR: In compliance with the instructions of the honorable Commissioners, District of Columbia, I have the honor to submit the following report of the work performed under the supervision of this office during the fiscal year ended June 30, 1902:

Two thousand six hundred trees were planted out on the streets of the city and suburbs, consisting of elms, ginckoes, lindens, Norway, silver and sugar maples, and pin and willow-leaf oaks, at an average expenditure of \$3 per tree on the street, boxed, staked, and strapped. This includes the labor of making the boxes,

digging the holes, filling them with good soil and carting away the rejected earth, removing the trees from the nursery, and the planting, boxing, staking, and strapping of the same, as well as the cost of the materials, namely, lumber, straps, strap iron, and nails.

Twenty-two thousand seedlings were planted out in the new nursery, these consisting of the varieties named as planted on the streets, and red and English oaks. They are all in good condition, and the seed beds are well stocked with varieties which experience has shown to be the best for this locality.

The care of the nurseries includes fencing a portion of the new nursery at the intersection of Richmond street and Brightwood avenue, the sowing of seed in beds, the planting of seedlings in nursery rows, and the pruning and general cultivation of trees in it. Also the general care of the old nursery at the foot of E street SE.

Tree trimming is one of the most important matters under the jurisdiction of this office, and, with the increase of area and number of trees planted annually, it becomes more so. If the standard of excellence now attained is to be maintained in the future, the amount of money to be used for this purpose must be increased very materially, else this or other deserving matters must be neglected. There are yet several thousand trees remaining in the parkings on streets too narrow for double rows, very many of which were planted previous to the regularly spaced trees at the curb line and have reached such a size that they should be severely trimmed in justice to the younger and more desirable varieties at the curb.

Six hundred and fifty casualties were reported by the police department, and about 223 by memorandums left at this office and at the District building. This work consisted in removing broken limbs from the streets, replacing leather straps which had become broken, and restaking loosened boxes.

Five hundred and eighty-three official communications were received, and inspections and reports made, which were necessary for the proper execution of the work. In the requests for trimming trees, it was very frequently necessary to see the parties to ascertain what was wanted, and sometimes several visits were made before this could be accomplished, thereby adding much to the work of this office.

Six hundred and forty-four trees were removed. Of these, 50 were in the way of street improvements, notably Gales street NE., Decatur street NW., and Twenty-second street NW. Many were removed because of objectionable location, injurious to other trees planted at the curb, and others because of their being too old and so badly decayed as to render their removal a matter of public safety. In accordance with your verbal instructions of May 17, 1902, an account showing the date, situation, age, surrounding pavements, size of tree space, and the cause of removal of all dead, dangerous, and otherwise objectionable trees has been kept, as shown in the accompanying paper.

During the first quarter of the fiscal year caterpillars appeared on the trees in large numbers, but the new appropriation for the year being available on their first appearance, they were vigorously attacked and subdued without any great defoliation of the trees. The "elm beetles," which usually attack the elms during the month of May, did not make their appearance, and as a result these trees present an unusually fine appearance at this time. It is noticeable that the elms are no more frequently attacked by the beetle than the other varieties are by the web caterpillars and other insects, but the former are much more difficult to exterminate because of the average size of the elm trees and the character of the insect. During the last month of the fourth quarter the web caterpillars again appeared on the trees, and this being at a time when the appropriation was nearly exhausted, much damage would have resulted had not the sum of \$1,000 been allotted from the emergency fund for their destruction, which enabled the parking commission to successfully contend with them.

In the removing and readjusting of tree wires some wires were removed because they had become so rusted as to be useless, many to admit of growth, and others because they had become so injured by horses being fastened to them as to be no longer of service. During the year all the wires in the northwest section, between North Capitol and Nineteenth streets, were gone over and put in as good condition as the material would permit. Numerous other places were given special attention also.

For several years after planting trees it is necessary to keep the tree spaces free from weeds, and, in fact, all growth, unless such spaces are sodded and properly cared for by private parties. The soil must be kept in such condition as to permit the trees to receive the full benefits of rainfall.

The work at the office yard consisted in the preparation of tree straps, making repairs to tree boxes, the grinding of axes and other edge tools, and miscellaneous items.

Considerable expenditure was made in improving the following by soiling and seeding, viz: Dent School parking, parking on New York avenue, between Eleventh and Thirteenth streets, NW.; the triangle at Twentieth and Baltimore streets, and the triangle at Nineteenth street and Columbia road.

Expenditures for labor.

Tree planting.....	\$7,800.00
Care of the nurseries.....	1,759.50
Trimming of trees on the streets.....	3,648.89
Repairing storm damages.....	1,000.00
Removing trees.....	1,200.00
Removing caterpillars.....	1,721.00
Paving around newly planted trees.....	254.00
Removing old decayed boxes.....	25.00
Mowing street parkings, etc.....	1,000.00
Readjusting wire tree guards.....	656.00
Cultivating trees on the streets.....	1,509.50
Work at the office yard.....	940.50
Gathering tree seeds (various kinds).....	25.00
Soiling and seeding parkings and triangles.....	389.00

Total amount expended for labor..... 21,928.39

Expenditures for materials.

Two horses.....	\$340.00
Lumber.....	2,300.00
Soil.....	270.00
Nails.....	95.00
Terra-cotta pipe.....	60.00
Strap iron.....	78.00
Grass seed and fertilizer.....	65.00
400 silver maples.....	80.00
Leather straps.....	300.00
Other materials.....	1,256.76

Total amount expended for materials..... 4,844.76

Total amount expended for labor..... 21,928.39

Total amount expended for materials and labor..... 26,773.15

Appropriation for year 1902.....	25,000.00
Allotment from emergency fund.....	1,000.00
Amount obtained through repayment vouchers.....	811.10

Total working amount..... 26,811.10

Total expended..... 26,773.15

Total unexpended..... 37.95

Four foremen were employed continuously during the year at the rate of \$3 per diem, aggregating a total expenditure of \$3,588.75.

Number of trees on the streets, as per last report..... 82,531
Number of trees removed during the year..... 644

Number of trees planted during the year..... 81,887
2,600

Number of trees now on the streets..... 84,487

I recommend an increase of \$200 each in the salaries of the superintendent and assistant superintendent of parking.

Very respectfully, *TRUEMAN LANHAM,*
Superintendent of Parking, District of Columbia.

Maj. JOHN BIDDLE,
Corps of Engineers, U. S. Army,
Engineer Commissioner, District of Columbia.
(Through Captain Newcomer.)

Trees removed.

[Note.—C. P. S. designates "Continuous parking strip."]

Date.	Street.	Situation.	Age.	Kind of tree.	Pavement.		Size of space.	Cause of removal.
					Roadway.	Sidewalk.		
19 th May 20	Lydecker avenue.....	Holmead avenue and Fourteenth street.	1	Sycamore.....	Gravel.....	Cement.....	C. P. S.	Dead; girdled by box tops.
20	do	do	1	do	do	do	do	Do.
20	do	do	1	do	do	do	do	Do.
20	P street NW.....	Sixth and Seventh streets.	15	Cur. poplar.....	Ashlnt.....	do	6 by 4 feet.	Dead; roots cut for new sidewalk.
20	Second street NW.....	Gift and Massachusetts Avenue.	2	A. linden.....	do	do	do	Dead; girdled by box tops.
20	G street NW.....	Syramore.....	2	do	Brick.....	do	do	Dead; cause unknown.
20	D street NW.....	Soft nut pine.....	2	do	do	do	do	Dead; eaten by horses.
20	First street NW.....	Norway maple.....	3	do	Asphalt block.....	Asphalt block.....	do	Dead; killed by escaping gas.
20	C and D streets.....	Elm.....	3	do	Brick.....	do	do	Dead; killed by gas.
20	New Jersey Avenue NW.....	Aspen poplar.....	6	do	do	do	do	Dead; cause unknown.
20	B street NW.....	Sugar maple.....	2	do	do	do	do	Dead; cause unknown.
21	New York Avenue NW.....	Soft maple.....	12	do	In parking.	do	do	Do.
21	M street NW.....	do	1	do	Asphalt.....	Cement.....	6 by 4 feet.	Dead; roots cut for new sidewalk.
21	H street NW.....	do	1	do	do	Brick.....	do	Dead; killed by escaping gas.
21	M street NW.....	Eleventh and Twelfth streets.	1	do	do	Cement.....	do	Dead; killed by horses.
21	do	Ninth and Tenth streets.	1	do	do	Brick.....	do	Dead; cause unknown.
21	N street NW.....	Eighth and Ninth streets.	1	do	do	do	do	Do.
21	do	Sixth and Seventh streets.	12	Negrundo.....	do	do	do	Dead; probably killed by bruning account caterpillars.
21	do	do	12	do	do	do	do	Do.
21	do	do	12	do	do	do	do	Do.
21	do	do	12	do	do	do	do	Do.
21	G street SE.....	Fourth and Fifth streets.	12	do	do	do	do	Do.
21	N street NW.....	do	12	do	do	do	do	Do.
22	O street NW.....	Sixth and Seventh streets.	12	Cur. poplar.....	Granite block.....	do	7 by 3 feet.	Blown over—eaten by horses.
22	First street NW.....	Fourth and Fifth streets.	12	Negrundo.....	Asphalt.....	do	do	Dead; repeated severe trimming, account caterpillars.
22	do	(3 trees).	1	Norway maple.....	do	Cement.....	C. P. S.	Dead; killed by escaping gas.
22	do	M and New York Avenue.	1	Soft maple.....	do	Brick.....	do	Dead; had been diseased for some time.
22	do	New Jersey avenue and Fifth street.	12	Red maple.....	do	Macadam.....	7 by 3 feet.	Dead; cause unknown—not suited for streets.

Trees removed—Continued.

Date.	Street.	Between—	Situation.	Age.	Kind of tree.	Pavement.		Size of space.	Cause of removal.
						Roadway.	Sidewalk.		
1902, May 20	Columbia road.....	Eighteenth and Nineteenth streets.	Sugar maple.....	4		Asphalt.....	Cement.....	6 by 4 feet.	Dead; cause unknown.
20	Thirteenth street NW.....	Yale and Princeton and M street.	Norway maple.....	2		Gravel.....	do.....	6 by 2 feet.	Dead; oil in straps.
23	Fourth street NW.....	New York avenue and M street.	Negundo.....	17		Granite block.....	Brick.....	6 by 2 feet.	Dead; probably pruning account caterpillars.
19	Second street NW.....	D and E streets—First and Second streets	E. Linden Negundo.....	11		Asphalt.....	do.....	2 by 2 feet.	Dead; decayed and dangerous.
19	B street SE.....	12 trees.	J. Linden Negundo.....	12		do.....	Cement.....	6 by 3 feet.	Dead; killed by escaping gas.
20	Minnesota avenue SE.....	Pennsylvania avenue and Ames street (12 trees).	Sycamore.....	15		Macadam.....	do.....	do.....	Dead; cause unknown.
20	Second street SE.....	Corner of Virginian avenue.	Aspen poplar.....	17		Dirt.....	Brick.....	6 by 3 feet.	Leaning over the street.
20	B street NW.....	Thirteenth and Fourteenth streets.	A. Linden	12		Asphalt.....	do.....	do.....	Dead; killed by gas.
June 4	P street NW.....	Car. poplar.....	Dirt.....	do.....	do.....	do.....	do.....	do.....	Dead; rotten by horses.
5	Fourteenth street NW.....	Soft maple.....	Asphalt.....	do.....	do.....	do.....	do.....	do.....	Dead; roots cut in curb setting.
5	Thirteenth street NW.....	Aspen poplar.....	do.....	do.....	do.....	do.....	do.....	do.....	Dead; cause unknown.
May 19	Second street NW.....	A. Linden	do.....	do.....	do.....	do.....	do.....	do.....	Dead; rotten by horses.
21	Pennsylvania avenue SE.....	Sycamore.....	Gravel.....	do.....	do.....	do.....	do.....	do.....	Dead; eaten by horses.
21	I street NW.....	Car. poplar.....	Asphalt.....	do.....	do.....	do.....	do.....	do.....	Dangerous from winds and root maturation.
21	Virginia avenue SE.....	A. Linden	In parking.	do.....	do.....	do.....	do.....	do.....	Objectionable; in way of new steps.
22	Nineteenth street NW.....	Aspen poplar.....	In parking.	do.....	do.....	do.....	do.....	do.....	Obscured light from house.
22	Fifth street SE.....	A. Linden	Brick.....	do.....	do.....	do.....	do.....	do.....	Dead; caused by escaping gas.
22	Fourteenth street NW.....	Soft maple.....	do.....	do.....	do.....	do.....	do.....	do.....	In way of new building (Mr. Willard).
June 2	Twenty-second street NW.....	do.....	Asphalt.....	do.....	do.....	do.....	do.....	do.....	Dead; killed by gas.
2	M street NW.....	Tenth and Eleventh streets.	do.....	do.....	do.....	do.....	do.....	do.....	In line of a new fence.
2	A street NW.....	Sixth and Seventh streets.	do.....	do.....	do.....	do.....	do.....	do.....	Dead; killed by gas.
3	Twenty-first street NW.....	H and I streets.	do.....	do.....	do.....	do.....	do.....	do.....	Dead; grinded by gas.
3	D street SW.....	First and Second streets.	do.....	do.....	do.....	do.....	do.....	do.....	In way of new sewer trap.
3	Jefferson street east of Folk street.....	do.....	Asphalt.....	do.....	do.....	do.....	do.....	do.....	Dead; killed by horses.
4	C street SW.....	Third and Fourth streets.	do.....	do.....	do.....	do.....	do.....	do.....	Blown down during storm.
5	K street NW.....	Twenty-first and Twenty-first streets.	do.....	do.....	do.....	do.....	do.....	do.....	do.....
5	Twenty-first street NW.....	K and L streets.....	do.....	do.....	do.....	do.....	do.....	do.....	Dead; killed by gas.

Total number trees removed since May 15, 1902, 126.

SUBSURFACE AND BUILDING DIVISIONS.

Capt. CHESTER HARDING,

Corps of Engineers, United States Army, Assistant to the Engineer Commissioner. in charge.

WATER DISTRIBUTION.....	W. A. MCFARLAND, <i>Superintendent Water Department.</i>
WATER RATES.....	GEORGE F. GREEN, <i>Water Registrar and Chief Clerk, Water Department.</i>
SEWER CONSTRUCTION AND MAINTENANCE	D. E. MCCOMB, <i>Superintendent of Sewers.</i>
PLUMBING PLANS AND INSPECTION.....	O. L. INGALLS, <i>Inspector of Plumbing.</i>
BUILDING AND BUILDING INSPECTION.....	SNOWDEN ASHFORD, <i>Inspector of Buildings.</i>
REPAIRS TO BUILDINGS.....	A. M. LAWSON, <i>Inspector of Elevators.</i>
	G. B. COLEMAN, <i>Superintendent of Repairs.</i>

REPORT OF ASSISTANT IN CHARGE.

OFFICE OF THE ENGINEER COMMISSIONER,

DISTRICT OF COLUMBIA,

Washington, October 13, 1902.

MAJOR: I have the honor to forward herewith the reports of the divisions of the engineer department under my charge for the year ending June 30, 1902, as submitted by the superintendent of the water department, the water registrar, the superintendent of sewers, the inspector of plumbing, the inspector of buildings, and the superintendent of repairs.

Very respectfully, your obedient servant,

CHESTER HARDING,

Captain, Corps of Engineers, Assistant to Engineer Commissioner.

Maj. JOHN BIDDLE,
Corps of Engineers, Engineer Commissioner.

REPORT OF THE SUPERINTENDENT OF THE WATER DEPARTMENT.

WASHINGTON, D. C., July 21, 1902.

SIR: I have the honor to submit the following report of work done by the distribution branch of the water department for the fiscal year ending June 30, 1902.

The routine work of main extension, fire-hydrant erection, etc., is fully set forth in the accompanying tables, to which reference is made for details of cost, etc. The total length of mains laid during the year was 54,209 feet, equal to about 10 miles, as against 65,812 feet for the year preceding.

Eighty-three fire hydrants were set, bringing the total number available for use up to 2,114.

PUMPING STATIONS.

U street.—No changes of any importance were made in the equipment during the year.

On July 19 the 8,000,000-gallon pump was disabled by the parting of a number of steel studs connecting the upper and lower sections of the intermediate water chamber; repairs were at once begun. On the morning of July 20, the auxiliary engine of the 7,000,000-gallon pump was wrecked by the breaking of the beam at the trunnions. This left an area with a population of about 50,000 people and a normal water consumption of 8,000,000 gallons a day dependent on a reserve supply of 24,000,000 gallons in Brightwood reservoir and the pumping of two small pumps with a combined capacity of 1,500,000 gallons a day.

As many extra machinists and helpers as could be used on the work were at once employed, and by 1 o'clock a. m. on the 21st sufficient repairs had been made on the 7,000,000-gallon auxiliary to enable the starting of this pump. Some three days later the 8,000,000-gallon pump was started.

The work of repair was made particularly difficult by reason of the small amount of space available and the extreme heat.

Following are items of chief interest from station records:

Water pumped during year:	
Middle service	million gallons 2,665
High service	do 117
Total	do 2,782

Per cent increase over year ending June 30, 1901:

Middle service	" 1.25
High service	21.88

Water pumped per day during year:

Middle service	gallons 7,301,179
High service	do 320,532
Total	do 7,621,711

Coal burned during year	pounds 5,485,715
Coal burned per day, mean	do 15,029
Cost of coal per year	87.956
Cost of coal per day, mean	\$21.79

Cost of pumping during year.

Running expenses at station:

Labor	\$12,829.44
Coal	7,956.00
Oil	517.91
Waste	271.90
Miscellaneous supplies	596.40
Material for repairs	1,064.98
Total	23,236.63
Per day, mean	\$63.63
Cost of land	2,275.00
Cost of building	30,000.00
Cost of machinery	75,000.00
	107,275.00
Interest, at 3 per cent	3,218.25
Depreciation, building and machinery	3,150.00
Grand total	29,604.88
Per day	81.11
Total cost of pumping 1,000 gallons under actual conditions (including interest and depreciation)	cents 1.06

Anacostia station.—This station has been in continuous use during the year, delivering water, by direct pressure, to a height of about 190 feet above tide, and giving excellent service. The pump used is an old direct-acting "Blake," of low efficiency. It is hoped that in the near future the water department may be enabled to replace this pump with a modern one of high-duty type, and build a permanent station building in place of the present temporary wooden structure.

Following are the principal data of interest from this station's records:

Water pumped during year	million gallons 141
Mean, per day	gallons 386,300
Coal burned during year	pounds 998,515
Coal burned per day, mean	do 2,735
Cost of coal per year	\$1,448.74
Cost of coal per day, mean	3.96

^aThis small increase is due to the fact that area supplied by pumps was reduced by extension of gravity service, made possible by completion of Washington Aqueduct extension.

Cost of pumping.

Labor	\$4,948.07
Oil	69.53
Coal	1,448.74
Waste	10.29
Miscellaneous items	192.86
Material for repairs	16.75
 Total	 6,686.23
Per day, mean	\$18.32
 Cost of land	 900.00
Cost of building	5,039.73
Value of machinery	1,000.00
 Interest, at 3 per cent	 6,939.72
Depreciation, building and machinery	208.19
 Grand total	 181.18
Per day	7,075.60
Total cost pumping 1,000 gallons under actual conditions	19.38 cents
	5.018

Reservoirs.—Reno and Brightwood reservoirs have been in continuous service during the year; adjoining Reno reservoir the water department has acquired a parcel of land 100 feet square on which to build a water tower for the better supply of land lying above the 350-foot contour. It is hoped to commence this work during the current year. At Brightwood reservoir two gatehouses of granite have been completed, iron railing around basins built, and roadways kept in good condition. This work is now practically complete.

Trumbull Street pumping station.—The erection of this building under contract with the George A. Fuller Company is well under way, though a delay of some three months has been caused by difficulty in securing material: at the present time, June 30, the walls are up to the level of first-floor beams. Contracts have been made with Westinghouse, Church, Kerr & Co. for steam-generating equipment; with Pawling & Harnischfeger for 20-ton electric crane; with Michigan Brass and Iron Works for large water gates; with the United States Cast Iron Pipe and Foundry Company for flanged water-pipe specials; with the Allis-Chalmers Company for new water end for 8,000,000 gallon pumping engine; with Henri Kampmann for coal pockets of 1,000 tons storage capacity; and with Johnson & Morton for switchboards.

During the ensuing year contracts will be made for coal and ash conveying machinery, elevators for storage rooms, steam-heating equipment, etc.

Electrical generating machinery was bought in open market, one 150-kilowatt and one 50-kilowatt machine being purchased.

Office records.—The work of preparing a card index record of water gates showing exact location and giving all available data is progressing in a satisfactory manner. Up to the end of the year about 1,859 gates have been so recorded and indexed. In the older parts of the city this has proved a work of much difficulty. Other records and maps have been kept well up to date and are in excellent shape.

The chief works contemplated for the coming year in addition to routine extensions are the practical completion of building for Trumbull Street pumping station; the laying of 48-inch and 36-inch mains from that station to Capitol Hill and to Thirteenth street and Florida avenue; the alteration of service mains on Capitol Hill, to prevent the occurrence of "dead ends" on the boundary line between "Low" and "First" high-service areas; the building of a tower or elevated tank, as stated above, near Reno reservoir; and, possibly, preparation of plans for a high-service reservoir for the territory east of the Anacostia River.

There is also under consideration a change in size of outlet openings of all fire hydrants from $2\frac{1}{2}$ to 4 inches diameter; this change is much desired by the fire department, and it would no doubt be of considerable value. Satisfactory plans for this change have not yet been completed.

On October 3, 1901, there was submitted a project for the installation of a high-

pressure-fire service system for the business section of the city. A copy of this report is appended hereto.

In conclusion I wish to record my appreciation of the active interest shown by the employees of this department in the execution of their work, and of the excellent results attained.

Very respectfully,

W. A. McFARLAND,
Superintendent Water Department.

Maj. JOHN BIDDLE,

Corps of Engineers U. S. Army,

Engineer Commissioner, District of Columbia.

(Through Captain Harding.)

WASHINGTON, October 3, 1901.

CAPTAIN: I have the honor to submit for your consideration the following project for the installation of a separate high-pressure fire-service system for the city of Washington.

The project, in brief, is to utilize the water pressure from the Reno reservoir, having a mean elevation of 415 feet above tide level, by means of large trunk mains extending to the principal business sections of the city, and by special high-pressure hydrants properly spaced over such territory as it might be desired to cover. The system is to be used for fire protection only.

The general arrangement of mains proposed is shown on the accompanying map.^a The only territory there covered is the principal business section of the northwest bounded by Sixth, I, Seventeenth streets, and Pennsylvania avenue. The system as planned, however, is capable of subsequent extension to any desired extent over territory inside of the city limits. Such extension would require only a further laying of trunk and branch mains.

If a 36-inch trunk main be laid as indicated on the map herewith, an effective head of water of about 357 feet will be obtained at hydrants on F street, for example, while 10,000 gallons of water per minute are flowing through the mains; this amount of water is equivalent to 30 strong fire streams through 14-inch nozzles. The pressure on Pennsylvania avenue would be some 20 feet greater.

As examples of what can be accomplished by these pressures reference is made to the elaborate experiments of John R. Freeman, as reported to the American Society of Civil Engineers in 1889.

For instance, if two lines of 2½-inch hose, each 400 feet long, were siamesed into one line near the play pipe and a 1½-inch smooth nozzle used at street level, a head of 357 feet at the hydrant would project a stream of 456 gallons per minute to an extreme height of 150 feet, or a good effective fire stream to a height of 100 feet.

If a single line of 2½-inch hose 600 feet long were carried to the top of a 200-foot building, the pressure would be sufficient to deliver at that height a volume of 180 gallons per minute through a 1½-inch smooth nozzle and throw it to a farther height of 40 feet; or, if needed, thirty such lines would deliver each an equal amount.

Even if 1,000 feet of hose were used, there would be delivered a volume of 230 gallons per minute through a 1½-inch smooth nozzle.

With an increase from 30 streams to 40 the effective head would be reduced, on F street, to about 338 feet, still sufficient for an excellent service.

The estimated cost of this entire work, covering main trunk line as shown, secondary trunk lines 24 inches in diameter, service mains 16 inches in diameter, and 200 special 3-nozzle high-pressure fire hydrants, is \$496,235.

One effect of putting such a service as this in successful operation would almost certainly be a reduction in insurance rates, as there can be no question that it would largely reduce the fire risk.

In this connection attention is invited to the experience of Providence, R. I., where, in October, 1897, a high-pressure fire-service system was put in operation over a part of the city—about one-half square mile.

Previous to the installation of this high-pressure service there were water pressures of from 40 to 75 pounds per square inch (much better than those now available in that part of the city of Washington under discussion). The static heads

^a Not printed.

at the hydrants in the Providence system varied from 196 to 267 feet, while those in the system as proposed for Washington would range from 355 to 385 feet.

In writing of the Providence system, E. B. Weston, civil engineer, says (Journal of N. E. Waterworks Association), September, 1898:

"The high-pressure fire service seems to give general satisfaction to all concerned.

"The insurance rates have been reduced 5 per cent within the district which it is intended to protect, and an authority in regard to insurance has estimated that the holders of policies within the district will save in ten years, owing to smaller premiums being paid, an amount which will exceed the total cost of the entire system. During a large fire last December (1897), in the opinion of the fire commissioners and others, the system practically paid for itself, as the fire was kept within the walls of the building in which it originated by the aid of the high-pressure fire service." * * *

The cost of the Providence system was \$143,175.

An important point in favor of the separate high-pressure service is that it will encourage the extensive introduction of automatic sprinklers. There are at present but few of these in use in this city, and those few are served by local pumps and roof tanks. If the high-pressure service were introduced these sprinklers would be directly connected with the street mains, thus obtaining higher pressure and much more certain supply.

As a partial offset to the cost of construction would be the saving to the fire department in the matter of apparatus. Steamers would be dispensed with in the high-pressure districts, thus saving first cost and maintenance charges, and incidentally leaving more men free for the actual work of fighting fire.

Even if the high-pressure service be not constructed it will be necessary in a few years to lay a new main from the pumping station to Reno reservoir, at an estimated cost of \$120,000. This amount also should be considered as a partial offset to the first cost of the system.

The decreased fire risk and consequent reduction in insurance rates alone would, in my opinion, fully justify the expenditure necessary to secure these results.

In safety from accidental derangement the system would be much better than that now in use, as the trunk line would be served from the reserve supply (4,500,000 gallons) in Reno reservoir, with an elevation of 415 feet at one end and directly from the pumping engines at the other. There would be made an emergency connection with the Brightwood reservoir (30,000,000), with an elevation of 278 feet above tide for use only in case both other sources of supply should fail.

Should the Commissioners approve of this project it is recommended that Congress be asked to appropriate for the work, as all available funds of the water department are needed for the completion of the new domestic distribution system now under construction.

Should such appropriation be made it would be well to enact that the system below elevation of 200 feet should be used for no purpose but the supply of street fire hydrants and sealed automatic sprinkler systems, and that high-pressure fire hydrants should be used by no persons other than employees of the fire and water departments.

Following are given in outline the calculations on which the foregoing statements are based.

1. *Determination of size of trunk main.*—Length of main from reservoir to center of District, 27,000 feet; length of main from pumps to center of District, 12,000 feet; capacity of pumping engine available for this service, 4,100 gallons per minute; maximum rate of flow, based on 30 simultaneous streams of 333 gallons per minute each, 10,000 gallons per minute; with pumps running, rate of flow from reservoir to center of District, for 30 streams, $10,000 - 4,100 = 5,900$ gallons per minute, through 27,000 linear feet of main.

(a) Assuming a 30-inch main, with average deterioration at end of ten years, we have from Weston's tables, friction loss per 1,000 feet of pipe for 5,900 gallons flow, 1.22, or a total loss of head of 27 by $1.22 = 33$ feet. With pumps stopped, rate of flow would be 10,000 gallons per minute, which, from same tables, would result in a total loss of head of 93 feet.

(b) Assuming a 36-inch main, the total losses of head under similar circumstances would be, respectively, 13 and 37 feet. The former losses are, in my opinion greater than should be permitted, and I have therefore recommended the larger main, 36 inches in diameter.

.. Estimates of cost.

(a) 30-inch trunk main. 39,000 feet long:	
Pipe:	Pounds.
10,000 linear feet, at 320 pounds per foot	2,960,000
10,000 linear feet, at 330 pounds per foot	372,000
8,000 linear feet, at 400 pounds per foot	1,200,000
24,000 linear feet, at 450 pounds per foot	10,848,000
	15,620,000
15,620,000 pounds cast-iron pipe, at 1 cent	\$156,200.00
200,000 pounds lead, at 5 cents	15,000.00
Labor and miscellaneous material, at \$1.75 per foot	68,250.00
Total estimated cost 30-inch trunk main	239,450.00
(b) 36-inch trunk main. 39,000 feet long:	
Pipe:	Pounds.
10,000 linear feet, at 320 pounds per foot	3,920,000
8,000 linear feet, at 400 pounds per foot	910,000
8,000 linear feet, at 450 pounds per foot	1,635,000
24,000 linear feet, at 514 pounds per foot	14,976,000
	21,441.000
21,441.000 pounds cast-iron pipe, at 1 cent	\$214,410.00
200,000 pounds lead, at 5 cents	15,500.00
Labor and miscellaneous material, at \$2 per foot	78,000.00
Total estimated cost of 36-inch trunk main	308,910.00
Excess of cost of 36-inch over 30-inch main, \$308,910 - \$239,450	\$69,460.00
(c) Estimated length of 24-inch secondary trunk mains for No. 1 district, 15,000 feet:	
15,000 feet cast-iron pipe, at 307 pounds per foot	Pounds.
	4,605,000
4,605,000 pounds pipe, at 1 cent	\$46,050.00
50,000 pounds lead, at 5 cents	2,500.00
Labor, etc., at \$1.10 per foot	16,500.00
Total	65,050.00
(d) Estimated length of 16-inch service mains for No. 1 district, 30,000 feet:	
30,000 feet cast-iron pipe, at 158 pounds per foot	Pounds.
	4,740,000
4,740,000 pounds pipe, at 1 cent	\$47,400.00
62,500 pounds lead, at 5 cents	3,125.00
Labor, etc., at 75 cents per foot	22,500.00
	73,025.00
(e) Estimated length 10-inch branch pipes, 10,000 feet:	
10,000 feet cast-iron pipe, at 77 pounds per foot	
	770,000
770,000 pounds pipe, at 1 cent	\$7,700.00
9,000 pounds lead, at 5 cents	450.00
Labor, etc., at 50 cents per foot	5,000.00
	83,150.00
(f) 20 th special hydrants, at \$100	20,000.00

(g) Special gates:		
14 36-inch, at \$500		\$7,000.00
10 24-inch, at \$150		1,500.00
40 16-inch, at \$65		2,600.00
200 10-inch, at \$25		5,000.00
		16,100.00
	SUMMARY.	
(b)		\$308,910.00
(c)		65,050.00
(d)		73,025.00
(e)		13,150.00
(f)		20,000.00
(g)		16,100.00
Total		496,235.00

Very respectfully,

W. A. MCFARLAND,
Superintendent Water Department.

Capt. CHESTER HARDING,

*United States Corps of Engineers.**Assistant to Engineer Commissioner, District of Columbia.*TABLE I.—*Mains laid and miscellaneous work during the fiscal year ending June 30, 1902.*

New mains laid:

30 inches diameter	linear feet	1,227
20 inches diameter	do	203
12 inches diameter	do	14,010
6 inches diameter	do	35,481
4 inches diameter	do	1,414
3 inches diameter	do	1,632
2½ inches diameter	do	242
Mains lowered	do	4,204
New stop valves		138
Fire hydrants erected		83
Public hydrants erected		7
Horse fountains erected		10

TABLE II.—*Summary of the distribution system.*

		In service prior to June 30, 1901.	Added during fiscal year.	Total June 30, 1902.
75 inches diameter	linear feet	600		600
48 inches diameter	do	30,000		30,000
36 inches diameter	do	34,082		34,082
30 inches diameter	do	37,720	1,227	38,947
24 inches diameter	do	21,545		21,545
20 inches diameter	do	36,366	203	36,569
16 inches diameter	do	2,508		2,508
12 inches diameter	do	202,543	14,010	a214,987
10 inches diameter	do	10,255		10,255
Total trunk mains		375,619	15,440	389,493
8 inches diameter	linear feet	6,005		6,005
6 inches diameter	do	1,433,583	35,481	1,469,064
4 inches diameter	do	131,882	1,414	133,296
3 inches diameter	do	61,435	1,632	63,067
2½ inches diameter	do		242	242
2 inches diameter	do	4,118		4,118
1½ inches diameter	do	3,802		3,802
Grand total		2,016,444	54,209	2,069,087
Stop valves		4,228	138	4,366
Fire hydrants		2,031	83	2,114
Public hydrants		333	7	329
Service connections		46,589	1,401	47,990
Horse fountains		86	10	96

a 1,566 feet of 12-inch main abandoned.

b 11 public hydrants abandoned.

2. *Estimates of cost.*

(a) 30-inch trunk main, 39,000 feet long:

Pipe:	Pounds.
10,000 linear feet, at 290 pounds per foot	2,900,000
2,000 linear feet, at 336 pounds per foot	672,000
3,000 linear feet, at 400 pounds per foot	1,200,000
24,000 linear feet, at 452 pounds per foot	10,848,000
	15,620,000
15,620,000 pounds cast-iron pipe, at 1 cent	\$156,200.00
300,000 pounds lead, at 5 cents	15,000.00
Labor and miscellaneous material, at \$1.75 per foot	68,250.00
Total estimated cost 30-inch trunk main	239,450.00

(b) 36-inch trunk main, 39,000 feet long:

Pipe:	Pounds.
10,000 linear feet, at 392 pounds per foot	3,920,000
2,000 linear feet, at 455 pounds per foot	910,000
3,000 linear feet, at 545 pounds per foot	1,635,000
24,000 linear feet, at 624 pounds per foot	14,976,000
	21,441,000
21,441,000 pounds cast-iron pipe, at 1 cent	\$214,410.00
330,000 pounds lead, at 5 cents	16,500.00
Labor and miscellaneous material, at \$2 per foot	78,000.00
Total estimated cost of 36-inch trunk main	308,910.00

Excess of cost of 36-inch over 30-inch main, \$308,910 - \$239,450

(c) Estimated length of 24-inch secondary trunk mains for No. 1 district, 15,000 feet.

15,000 feet cast-iron pipe, at 307 pounds per foot	Pounds.
4,605,000 pounds pipe, at 1 cent	\$46,050.00
50,000 pounds lead, at 5 cents	2,500.00
Labor, etc., at \$1.10 per foot	16,500.00
Total	65,050.00

(d) Estimated length of 16-inch service mains for No. 1 district, 30,000 feet:

30,000 feet cast-iron pipe, at 158 pounds per foot	pounds.
4,740,000 pounds pipe, at 1 cent	\$47,400.00
62,500 pounds lead, at 5 cents	3,125.00
Labor, etc., at 75 cents per foot	22,500.00
	73,025.00

(e) Estimated length 10-inch branch pipes, 10,000 feet:

10,000 feet cast-iron pipe, at 77 pounds per foot	
770,000 pounds pipe, at 1 cent	\$7,700.00
9,000 pounds lead, at 5 cents	450.00
Labor, etc., at 50 cents per foot	5,000.00
	13,150.00
(f) 200 special hydrants, at \$100	20,000.00

(g) Special gates:

14 36-inch, at \$500	\$7,000.00
10 24-inch, at \$150	1,500.00
40 16-inch, at \$65	2,600.00
200 10-inch, at \$25	5,000.00

16,100.00

SUMMARY.

(b)	\$308,910.00
(c)	65,050.00
(d)	73,025.00
(e)	13,150.00
(f)	20,000.00
(g)	16,100.00

Total. 496,235.00

Very respectfully,

W. A. MCFARLAND,
Superintendent Water Department.

Capt. CHESTER HARDING,

United States Corps of Engineers,

Assistant to Engineer Commissioner, District of Columbia.

TABLE I.—*Mains laid and miscellaneous work during the fiscal year ending June 30, 1902.*

New mains laid:

30 inches diameter	linear feet	1,227
20 inches diameter	do	203
12 inches diameter	do	14,010
6 inches diameter	do	35,481
4 inches diameter	do	1,414
3 inches diameter	do	1,632
2½ inches diameter	do	242
Mains lowered	do	4,204
New stop valves		138
Fire hydrants erected		83
Public hydrants erected		7
Horse fountains erected		10

TABLE II.—*Summary of the distribution system.*

	In service prior to June 30, 1901.	Added during fiscal year.	Total June 30, 1902.
75 inches diameter	linear feet	600	600
48 inches diameter	do	30,000	30,000
36 inches diameter	do	34,082	34,082
30 inches diameter	do	37,720	1,227 38,947
24 inches diameter	do	21,545	21,545
20 inches diameter	do	36,366	36,369
16 inches diameter	do	2,508	2,508
12 inches diameter	do	202,543	14,010 a214,987
10 inches diameter	do	10,255	10,255
Total trunk mains	linear feet	375,619	389,493
8 inches diameter	do	6,005	6,005
6 inches diameter	do	1,431,583	35,481 1,466,064
4 inches diameter	do	131,882	1,414 133,296
3 inches diameter	do	61,435	1,632 63,067
2½ inches diameter	do	-----	242
2 inches diameter	do	4,118	4,118
1½ inches diameter	do	3,802	3,802
Grand total		2,016,444	54,209 2,069,687
Stop valves		4,228	138 4,366
Fire hydrants		2,031	83 2,114
Public hydrants		333	7 6,329
Service connections		46,589	1,401 47,990
Horse fountains		86	10 96

a 1,566 feet of 12-inch main abandoned.

b 11 public hydrants abandoned.

TABLE III.—Statement showing cost of water mains laid during the fiscal year ending June 30, 1902.

Location.	Size.	Length.	Cost of	Cost of	Total
			labor.	material.	
South side of Duncan street NE., between Fourteenth and Fifteenth streets.	Ins.	Lin. ft.			
	2½	242.2	\$70.75	\$106.67	\$177.42
Alley, square 551.	3	74.1	27.65	83.25	110.90
Alley, square 538.	3	59	25.30	24.17	49.47
Alley, square 567.	3	131.9	36.68	60.21	96.89
Alley, square 167.	3	252.5	75.13	147.25	222.38
Alley, square 204.	4	284.6	75.53	300.69	385.22
Alley, square 70.	4	97.5	42.23	52.37	94.60
Alley, square 351.	4	131.6	62.14	77.70	139.84
Alley, square 471.	4	119.9	28.45	100.21	137.66
Alley, square 280.	4	249.8	67.80	186.36	254.16
Center of Sheridan street, east from Brown street NW.	4	81	25.00	19.89	44.89
Alley, square 67.	4	187	55.75	99.97	155.72
Alley, square 248.	4	208.2	43.00	201.81	244.81
Center of V street, between Fourth and Fifth streets NE.	6	305.5	101.10	233.60	334.70
North side Rhode Island avenue, between Fourth and New Jersey avenue NW.	6	290.8	112.89	189.76	302.65
Center of Jefferson street, east from Taylor street, Anacostia.	6	184	58.23	86.99	145.22
Center Harvard street, between Sherman and Brightwood avenues NW.	6	814.1	168.83	315.80	484.72
Center of U street, between Capitol and First streets NW.	6	812.2	169.89	317.37	487.26
South side East Capitol street, between Fourteenth and Fifteenth streets SE.	6	404.2	126.42	185.82	312.24
West side Twenty-third street, between L street and Pennsylvania avenue.	6	80.5	33.75	52.04	85.79
Center of Carroll street, from Minnesota avenue to Prout street; center of Prout street, east from Carroll street, Anacostia.	6	586.6	108.35	320.46	428.81
West side Adam's Mill road, between Columbia road and Lanier avenue NW.	6	422.5	133.77	209.15	342.92
West side Fourth street NW., between U and W streets.	6	882.8	235.37	399.00	654.37
North side Wyoming avenue NW., between Eighteenth and Nineteenth streets.	6	279.3	84.10	174.52	258.62
South side Cincinnati street NW., between Nineteenth and Twentieth streets.	6	316	78.80	146.85	225.65
Center Morgan avenue NW., north of Lamar avenue.	6	73	20.00	46.00	66.00
West side North Capitol street NW., from Seaton to T street.	6	267.7	57.68	110.65	168.33
Center Mintwood place NW., west from Columbia road.	6	586.5	145.21	220.92	366.13
Center of Sixteenth street SE., between A and B streets, and center of A street, between Fifteenth and Sixteenth streets.	6	807.7	242.88	441.42	684.30
Center of Sixteenth street NW., between Kene- saw and Grant avenues.	6	500	127.05	201.43	328.48
Center Oak avenue, south from Magnolia avenue.	6	206.4	83.00	100.85	183.85
Center Wabash avenue and Sixth street, eastward; center Blair road, south from Sixth street, Takoma Park.	6	115.7	36.55	47.92	84.47
Center Seaton street, between First and North Capitol streets NW.	6	300	67.75	117.74	185.49
South side Massachusetts avenue NW., between Twentieth and Twenty-first streets.	6	289.7	78.52	162.44	240.96
West side Twelfth street NE., between D and E streets.	6	544.4	208.37	283.42	491.79
Center of Duncan street NE., between Fourteenth and Fifteenth streets.	6	207.8	85.56	122.59	208.15
Center of Milwaukee street, Brookland, between Fifteenth and Sixteenth streets.	6	306.8	121.46	135.60	257.06
Center of Carroll avenue, east from Oak avenue; center of Oak avenue, north from Carroll avenue, Takoma.	6	1,774.2	396.03	827.09	1,223.12
North side of Maryland avenue SW., between Ninth and Tenth streets.	6	125	58.95	111.41	170.36
North side of Cincinnati street NW., between Nineteenth and Twentieth streets.	6	373.8	89.85	159.62	249.47
Center of Nebraska avenue, opposite American University, NW.	6	250	70.18	112.99	183.17
North side of G street NE., between Thirteenth street and Maryland avenue.	6	335.3	99.27	168.12	267.39
North side of Wyoming avenue NW., between Eighteenth and Nineteenth streets.	6	569.2	160.44	241.62	402.06
Center of Lincoln avenue NE., between Randolph and S streets.	6	349.1	102.51	169.92	272.43
North side of N street NE., between Twelfth and Thirteenth streets.	6	500	158.31	210.56	368.87

TABLE III.—Statement showing cost of water mains laid during the fiscal year ending June 30, 1902—Continued.

Location.	Size.	Length.	Cost of		Total cost.
			labor.	material.	
Center of Patterson street NE., between First street and Delaware avenue	6	170.5	\$35.69	\$83.71	\$119.40
West side North Capitol street NW., south from Quincy street	6	125	36.08	72.09	108.17
Center of H street SW., between Half and First streets	6	403.4	108.25	207.68	315.93
Center Seventeenth street, between Park and Lowell streets; center of Lowell street, between Seventeenth and Eighteenth streets; center of Eighteenth street, between Lowell street and Howard avenue NW.; center of Howard avenue, between Eighteenth and Nineteenth streets, Ingleside	6	1,801.5	436.54	836.26	1,272.80
Center of Thirty-fifth street NW., north from Woodley road	6	300.4	59.12	185.98	245.10
North side of S street NW., between First and Second streets	6	270.2	56.83	128.40	185.23
Center of V street NE., west from Fourth street	6	223.7	46.70	110.35	157.05
West side of North Capitol street NW., south from S street	6	148.8	36.60	86.08	122.68
South side of A street SE., between Seventh and Eighth streets	6	320.3	112.05	223.51	335.56
Center of D street NW., west from Twenty-first street; center of Twenty-first street, north from D street	6	244.4	76.37	154.78	231.15
Center of Morgan avenue NW., between Lamar avenue and Spring road	6	50	16.25	19.57	35.82
North side of Georgia avenue SE., between Second and Third streets	6	247	47.60	141.40	189.00
Center of Lincoln avenue NE., between S and Seaton streets	6	35	10.63	16.27	26.90
Center of Harrison street, between Avalon street and German Orphan Asylum, Anacostia	6	467	115.58	178.85	294.43
Center of Highland avenue, Cleveland Park, NW., west from Connecticut avenue	6	460	211.75	251.49	463.24
Center of Omaha street NW., between Fourth and Fifth streets	6	558	108.47	245.67	354.14
Center of Blair road, north from Chestnut avenue, Takoma Park	6	750	183.85	370.66	554.51
East side of Eighteenth street NW., between R and Riggs streets	6	240	95.70	128.54	224.24
Center of Seventh street, between Vermilion and Umatilla streets, Takoma Park	6	415	101.38	181.28	282.66
South side of Third street SW., between K and L streets	6	318.2	153.60	172.58	326.18
Center of Wallace street, north from Fort street, Brookland	6	134	65.50	98.34	163.84
West side of North Capitol street NW., between Taft and Vail streets; east side of North Capitol street NE., between Taft and Vail streets	6	2,190.7	568.98	1,124.04	1,693.02
Center Flint street, Brightwood, between Fifth street and Shepherd road	6	376	112.50	204.97	317.47
Center of Morgan avenue NW., between Lamar place and Spring road	6	220.2	56.31	94.45	150.76
Center of Swan street NW., between Sixteenth street and New Hampshire avenue	6	503.6	114.37	292.28	406.65
Center of California avenue, between Phelps place and Columbia road; west side of Connecticut avenue, north from California avenue NW.	6	1,058.6	407.08	455.94	863.02
Center of Sixteenth street SE., between D and E streets	6	478.8	103.00	247.62	353.62
East side of Connecticut avenue NW., north from Florida avenue	6	160.7	59.38	153.73	213.11
South side of Florida avenue NW., between North Capitol and Q streets	6	106.4	76.80	112.53	189.33
Center of Fourteenth street NE., north from Hartford street	6	224.2	49.88	102.59	152.47
South side of U street NW., west from Seventeenth street	6	453.8	86.13	226.58	312.71
East side of Eleventh street NW., south from Roanoke street	6	282	87.44	190.97	278.41
Center of Princeton street NW., between Sherman and Brightwood avenues	6	153.7	48.81	77.82	126.63
Center of Eighth street, Petworth, between Trenton and Utica streets	6	342.5	70.00	152.31	222.31
Center of Richmond street NW., north from Woodley street	6	50	10.00	19.87	29.87
Center of Lydecker avenue NW., between Sherman and Morgan avenues	6	127.9	38.49	70.71	109.20
East side of Fifth street NW., north from K street	6	249.8	69.84	127.28	217.12
South side of G street NE., between Fourteenth street and Elliott place	6	224.5	100.52	117.84	218.36
West side of Brightwood avenue NW., between Omaha and Philadelphia streets	6	306.3	84.85	188.65	273.50

TABLE III.—Statement showing cost of water mains laid during the fiscal year ending June 30, 1902—Continued.

Location.	Size.	Length.	Cost of labor.	Cost of material.	Total cost.
Center of Randolph street NW., east from Connecticut avenue	Ins. 6	Lin. ft. 670.7	\$200.24	\$330.60	\$530.84
Center of Graham street NW., between Thirteenth street and Brightwood avenue	6	500.0	99.00	218.43	317.43
West side of First street NW., between Albany and Baltimore streets	6	381.9	72.75	144.98	217.73
Center of Twelfth street NE., south from Detroit street	6	147.0	28.56	73.04	101.60
Center of Eighth street NW., between Des Moines and Erie streets	6	390.5	63.00	155.51	218.51
South side of Virginia avenue NW., west from Twenty-fourth street	6	344.3	113.97	259.49	373.46
Center of V street NE., east from Third street and center of Third north from V street	6	434.0	85.87	238.17	324.04
West side of New Jersey avenue NW., between Q and Franklin streets	6	210.2	64.94	85.21	150.15
Center of Howard avenue NW., east from Nineteenth street	6	175.5	39.00	71.29	110.29
East side of First street NW., between Albany and Baltimore streets	6	459.1	120.50	281.49	401.99
Center of Princeton street NW., between Sherman avenue and Eleventh street	6	49.0	17.00	19.88	36.88
Center of Columbia avenue NW., between Sherman avenue and Thirteenth street	6	71.7	18.00	358.55	1,063.19
East side of Connecticut avenue extended from Pierce Mill Road to Cathedral avenue NW	12	1,047.9	18.00	1,421.74	
West side of Bladensburg Road, from Mount Olivet Road to Standard Butterine plant	12	5,378.5	2,000.83	5,920.74	8,020.57
Across Pennsylvania Avenue Bridge SE	12	1,596.5	442.38	1,690.64	2,133.02
West side of Seventeenth street, from U to V streets; north side of V street, from Seventeenth street to Champlain avenue; west side of Champlain avenue, from V street to Washington Aqueduct shaft	20	203.6	2,409.71	5,925.94	8,335.65
30	1,227.6				
Total cost for laying mains and connections, including repairs to pavements			18,260.18	38,975.29	57,235.47
Uncompleted main June 30, 1901				440.86	440.86
Uncompleted fire hydrants June 30, 1901				14.91	14.91
Cost of erecting fire hydrants, including repairs to pavements			944.68	5,102.14	6,046.82
Cost of superintendence			1,676.50		1,676.50
Grand total			20,881.36	44,533.20	65,414.56

TABLE IV.—Statement of length and cost of water mains laid from July 1, 1878, to June 30, 1902.

Fiscal year.	36-inch.	30-inch.	24-inch.	20-inch.	16-inch.	12-inch.	10-inch.	8-inch.
	Lin. ft.	Lin. ft.	Lin. ft.	Lin. ft.	Lin. ft.	Lin. ft.	Lin. ft.	Lin. ft.
1878	40					3,719		
1879						7,499		
1880								
1881								
1882								
1883						1,625		26
1884						1,038		
1885						763		
1886						768		
1887						1,938	791	
1888						1,124	2,998	
1889						731		
1890						5,626	2,784	
1891							5,201	
1892						2,926	2,500	10,163
1893							6,473	
1894						278		39,386
1895							27,731	
1896						8,874		11,873
1897						2,180		6,877
1898							7,698	
1899						1,914		2,220
1900	10,902					48	157	
1901							10,026	
1902						35		14,010
Total	10,942	1,227	9,253	27,632	2,548	165,988	6,573	933

TABLE IV.—Statement of length and cost of water mains, etc.—Continued.

Fiscal year.	6-inch.	4-inch.	3-inch.	2½-inch.	2-inch.	1½-inch.	Total.	Cost.
	<i>Lin. ft.</i>	Lin. ft.	Lin. ft.	Lin. ft.	Lin. ft.	Lin. ft.	Lin. ft.	
1878	12,781	30					16,570	\$14,846.20
1879	8,516	1,397					17,322	19,436.03
1880	3,024						3,024	
1881	3,709						3,709	3,110.70
1882	1,920						1,320	1,626.43
1883	4,084						5,735	8,073.70
1884	8,972						10,010	10,492.51
1885	27,766	358	485				29,572	25,865.35
1886	35,192		6,623				44,544	49,025.10
1887	30,041	202	7,124				46,414	55,951.00
1888	9,123	9,148	3,937				22,939	17,626.63
1889	36,742	6,571	8,733				67,928	79,342.16
1890	34,737	2,856	2,855				40,448	19,113.54
1891	56,893	3,142	11,013				76,249	49,702.65
1892	88,709	3,342	1,286				108,926	74,733.04
1893	54,173	8,396	3,458				72,440	56,339.39
1894	86,632	12,832	2,918				142,046	126,509.55
1895	103,785	5,442	2,733				146,308	134,502.31
1896	61,464	1,738	3,262				87,505	89,395.12
1897	71,296	10,595	992			2,104	94,014	77,954.81
1898	52,371	6,735	2,790		1,633	500	72,634	48,601.70
1899	84,291	4,662	2,701		79	133	96,000	65,774.52
1900	53,838	4,211	2,116		17	453	73,059	114,784.72
1901	52,018	2,187	935			646	65,271	47,426.71
1902	35,481	1,414	1,632	242			54,209	57,676.33
Total	1,017,528	85,288	65,613	242	1,729	3,836	1,398,796	1,240,060.20

TABLE V.—Average cost per foot for laying mains of various sizes, excluding repairs to improved pavements, during the fiscal year ending June 30, 1902.

Size.	Linear feet.	Cost of material.	Cost of labor.	Total cost.
2½-inch		242	\$0.292	\$0.441
3-inch		550	.374	.501
4-inch		1,360	.270	.458
6-inch		34,061	.272	.498
12-inch		14,010	.390	.980
20-inch		203		
30-inch		1,227	1,630	4,130
				5,760

TABLE VI.—Statement of length and cost of water mains laid for the extension of the high-service system of water distribution from July 1, 1893, to June 30, 1902.

Size of main.	Laid to June 30, 1901.	Laid during year ending June 30, 1902.	Total.
1½-inch	2,717		2,717
2-inch	1,095		1,095
3-inch	1,808		1,808
4-inch	5,417	284	5,701
6-inch	162,804	25,673	188,477
12-inch	84,025	14,010	98,035
16-inch	48		48
20-inch	14,529	203	14,732
24-inch	6,946		6,946
30-inch	10,902	1,227	1,227
Total	290,291	41,397	331,688

Total cost to June 30, 1901. \$387,212.44

Total cost for fiscal year ending June 30, 1902. 47,679.75

Aggregate cost to June 30, 1902. 434,892.19

TABLE VII.—*Daily average consumption, middle and high services.*

Month.	Middle.	High.	Month.	Middle.	High.
1901.					
July.....	8,441,045	343,877	January.....	8,615,046	370,090
August.....	8,227,887	295,256	February.....	8,780,661	355,892
September.....	8,518,641	291,945	March.....	7,852,748	309,770
October.....	8,466,060	333,484	April.....	7,939,466	281,594
November.....	8,153,604	319,576	May.....	7,766,720	310,064
December.....	8,551,322	328,050	June.....	8,096,575	345,041

TABLE VIII. *Statement of the number of shallow and deep wells.*

	Shallow wells.	Deep wells.	Total.
In service June 30, 1901	62	40	102
Closed and discontinued during fiscal year ending June 30, 1902	0	0	0
In service June 30, 1902	62	40	102

Number of assistant engineers, clerks, inspectors, foremen, and other employees (exclusive of day laborers) in the employ of the Water Department of the District of Columbia, and the appropriation from which paid, for the fiscal year ending June 30, 1902.

Designations.	Number.	Per diem.	Appropriation from which paid.
Assistant engineer	1	\$6.00	\$690.00
Do	1	5.00	390.00
Superintendent of construction	1	6.00	672.00
Superintendent of stables	1	5.00	\$610.00
Inspector	1	5.00	1,005.00
Inspectors	5	4.50	2,025.00
Inspector	1	4.00	336.00
Do	1	3.00	962.25
Inspectors	13	2.50	67.50
Clerk	1	4.50	1,408.50
Clerks	6	4.00	1,064.00
Instrument man	1	3.50	2,156.00
Rodman	1	3.00	1,065.50
Do	1	2.50	339.00
Chainman	1	2.25	500.00
Draftsman	1	3.00	625.50
Do	1	2.50	327.00
Assistant foreman	1	3.50	542.50
Assistant foremen	2	3.00	1,102.28
Do	2	2.50	534.00
Chief steam engineer	1	4.50	429.00
Assistant steam engineer	1	4.00	\$865.00
Assistant steam engineers	5	2.50	52.50
Do	3	2.00	41.87
Machinist	1	4.00	1,167.48
Assistant machinist	1	3.50	228.00
Assistant machinists	2	3.00	2,325.00
Plumbers	2	3.50	317.25
Plumber	1	3.00	2,067.36
Storekeeper	1	3.00	819.00
Assistant storekeeper	1	2.50	950.25
Carpenter	1	3.00	713.75
Do	1	2.25	905.25
Blacksmith	1	3.25	43.00
Do	1	3.00	165.75
Assistant tapper	1	2.50	760.50
Firemen	4	2.50	577.00
Do	7	2.00	192.50
Watchman	1	2.50	2,625.00
Watchmen	4	1.75	2,344.00
Messengers	3	1.75	912.50
Total	86	26,567.23	20,513.88
			906.87
			47,987.98

REPORT OF THE WATER REGISTRAR.

WASHINGTON, D. C. August 11, 1902.

SIR: Complying with the order of July 3, 1902, I present herewith the annual report of the revenue and inspection branch of the water department for the fiscal year ending June 30, 1902. The report shows the financial condition, the work performed during the past year, together with such recommendations as are deemed necessary.

Inspections made, noted, and recorded.....	105,923
Cash receipts posted (average item §6).....	\$395,000
Premises in which leaks were found.....	7,491
Water-rent bills delivered by inspectors.....	32,634
Water-rent bills made out.....	65,000
Water-main assessment notices delivered.....	911
Tax certificates examined.....	6,520
Taps issued.....	1,412
Stopcocks issued.....	1,273
Permits examined.....	2,558
Files received, recorded, and answered.....	900
Letters sent out.....	488
Permits for water for building purposes issued.....	642

The financial condition of the department, as will be seen by this statement, has not only equaled the past years, but surpassed them.

During the year just closed the task of reexamining and remeasuring all the houses in the District supplied with Potomac water was completed and the inspectors' returns entered upon the records.

The year also witnessed the inauguration of a card index system for complaints, and another for meters.

In 1900 this office was relieved of the duty of inspecting yard hydrants, the work incidental thereto devolving upon the inspector of plumbing. Last year these examinations were reassigned to this office.

During the past year 253 new water meters were installed, and the good work continues. Large consumers and business men in general realize the advantage of paying for exactly what is furnished, and as a rule cheerfully comply with directions from the office to set meters.

The new schedule of water rents adopted March 8, 1902, and now in operation, is working smoothly, demonstrating the wisdom of the elimination of objectionable features and the equitable adjustment of such items as work hardship.

Herewith I also desire to express my gratitude to the employees of this office for the efficient discharge of their varied duties, thereby aiding in carrying on the work of this department in a most gratifying manner.

Five tables are herewith submitted.

Very respectfully,

GEO. F. GREEN,
Water Registrar.

Maj. JOHN BIDDLE.

*Corps of Engineers, U. S. Army,
Engineer Commissioner, District of Columbia.*

(Through Captain Harding.)

TABLE I.—*Financial statement from July 1, 1901, to June 30, 1902.*

Revenues:	
Balance to the credit of the water fund July 1, 1901.....	\$386,922.07
Schedule water rents.....	259,491.15
Meter water rents.....	58,913.24
Water-main tax.....	65,962.47
Taps.....	6,368.16
Permits.....	1,769.58
Miscellaneous.....	525.90
Water-service connections.....	2,363.52
Total.....	782,316.09

112 OPERATIONS OF THE ENGINEER DEPARTMENT, D. C.

Expenditures:

Salaries.....	\$30,503.35
Contingent expenses.....	2,685.39
Refunds.....	1,875.22
Pumping expense and pipe distribution.....	118,919.88
Extension of the high service.....	199,281.98
Purchase of water bonds.....	4,327.14
Purchase of water meters.....	285.00
On account of card system.....	1,118.58
On account of 1900.....	3,234.50
	362,231.04
Less repayments.....	32,472.19
	329,758.85
Balance July 1, 1902.....	452,557.24

TABLE II.—Comparative statement of revenues.

Fiscal year.	Water rents.	Water-main assessment.	Taps and stopcocks.	Permits, etc.	Total revenues.
1892.....	\$220,892.93	\$68,807.35	\$5,790.00	\$6,280.81	\$301,771.09
1893.....	235,911.25	70,025.33	7,307.09	7,331.71	321,176.38
1894.....	245,899.69	86,975.44	4,497.00	1,168.79	338,540.92
1895.....	251,872.71	72,972.24	4,537.55	2,100.60	331,483.10
1896.....	255,439.11	27,666.57	4,026.00	1,191.00	288,323.77
1897.....	253,500.16	53,653.39	5,157.00	1,128.28	313,438.83
1898.....	264,784.48	58,152.56	6,910.65	1,104.42	330,932.11
1899.....	276,005.54	62,937.43	6,327.00	1,545.15	346,875.12
1900.....	286,257.63	53,420.70	5,206.15	4,452.53	349,339.01
1901.....	303,557.19	56,359.72	6,140.85	3,064.39	369,122.15
1902.....	318,404.39	65,962.47	6,368.16	4,650.00	385,384.02
1903 ^a	325,000.00	60,000.00	7,000.00	2,000.00	384,000.00
1904 ^a	331,000.00	60,000.00	7,000.00	4,000.00	402,000.00

^aEstimated.

TABLE III.—Statement of assessments and collections of water-main taxes from July 1, 1878, to June 30, 1902.

Fiscal year.	From July 1, 1878, to June 30, 1901.	1902.	Total.
Amount of water-main tax assessed.....	^a \$1,297,822.20	\$42,410.00	\$1,340,232.20
Duplicate and overpayments.....	2,104.45		2,104.45
Six per cent abatement.....	20,822.85		20,822.85
Amount of water-main tax canceled.....	220,567.70	2,570.28	223,137.98
Amount of water-main tax collected.....	935,969.94	63,962.47	1,001,932.41
Amount of collectible water-main tax outstanding.....	113,566.16	^b 26,122.75	87,443.41

^aOf this amount \$94,124.78 was outstanding and uncollected July 1, 1878.^bThis amount is the excess of the amounts collected, canceled, and abated over the tax levied.

RECAPITULATION.

Amount of assessments and duplicate payments.....	\$1,342,336.65
Amount of abatement at 6 per cent.....	29,822.85
Amount of water-main tax canceled.....	223,137.98
Amount of water-main tax collected.....	1,001,932.41
Amount of water-main tax outstanding July 1, 1902.....	87,443.41
	1,342,336.65

TABLE IV.—Premises in the District of Columbia supplied with Potomac water.

Number of dwellings to June 30, 1901.....	46,475
Introductions to June 30, 1902.....	1,326
Total.....	47,801

MISCELLANEOUS UNMETERED WATER TAKERS.

Asylums.....	4
Bakeries.....	50
Boathouses.....	6
Banks.....	4
Barrooms.....	324
Barber shops.....	238
Freight depot.....	1
Railroad waiting station.....	1
Churches.....	69
Carpet-cleaning establishments.....	4
Dye houses.....	13
Dining and lunch rooms.....	149
Dairies.....	44
Engines, gas and steam.....	92
Factories.....	22
Flats.....	228
Foundries.....	2
Greenhouses.....	9
Hospitals.....	9
Halls.....	41
Ice companies.....	3
Laundries.....	213
Offices.....	413
Oyster depots.....	11
Photograph galleries.....	21
Schools.....	89
Pool rooms.....	41
Printing offices.....	20
Stables.....	825
Stores.....	2,682
Shops.....	306
Stone yards.....	10
Shooting galleries.....	6
Undertakers.....	17
Wood and coal yards.....	25
Warehouses.....	46

TABLE V.—*Water meters.*

	½-in.	¾-in.	1-in.	1-in.	1½-in.	2-in.	3-in.	4-in.	6-in.	Registers.	Total.
Worthington.....			3	13	14	23	16	4			73
Thomson.....	4	3	113	93	59	36	5	3	1		317
Crown.....	1		11	29	30	19	11	1	5		107
Union.....	1		43	50	12	12	1	1			120
Niagara.....			3	1	1						5
Lambert.....			40	12	16	6		1	1		76
Gem.....			1		4	4		8	1	1	16
Hersey Disc.....	1	1	1	1							11
Trident.....			3	3	2						8
Pittsburg.....	1	11	18	13	9	14					66
Registers.....										5	5
Nash.....	8	6	226	228	135	63	14	7	2		689
Total.....	13	12	452	450	286	178	69	18	10	5	1,493

REPORT OF THE SUPERINTENDENT OF SEWERS.

WASHINGTON, September 15, 1902.

SIR: I have the honor to submit the following report of the operations of the sewer division for the fiscal year ending June 30, 1902:

Under the appropriation for cleaning and repairing sewers and basins the following-described work was performed:

Sewers and appurtenances cleaned and repaired.

Cleaned:

Pipe sewers.....	feet	119,387
Main sewers.....	do	20,623
Manholes.....		14,477
Catch basins.....		117,752
Gravel basins.....		54
Basin outlets.....		74
Street detritus and sludge removed.....	cubic yards	10,408

Repaired:

Pipe sewers constructed	feet	420
Pipe sewers taken up and relaid	do	1,082
Main sewers repaired	do	982
Basins constructed		19
Basins reconstructed		37
Basins repaired		158
Flushing basins repaired		28
Basin tops replaced (artificial and bluestone)		56
Covers (cast iron) replaced		107
Basins abandoned		10
Manholes constructed		19
Manholes reconstructed		23
Manholes adjusted to grade		108
Manholes repaired		461
Manhole frames and covers replaced		91
Manholes covers replaced		120
Manholes abandoned		6
Flushing basins abandoned		1
Alley grates and frames replaced		65
Alley grates replaced		24
Alley basins repaired		44
Total number of minor repairs		493
Total number of jobs of all kinds performed		1,397

A section (550 linear feet) of new invert was constructed in the North Capitol street sewer between G and H streets. A contract was entered into with the Warren F. Brenizer Company for the construction of invert in the North Capitol street sewer between H and K streets. Forty-nine artificial basin tops were constructed. The outlets of Anacostia main sewers were cleaned. The outlet of the northeast boundary sewer was repaired.

Amount expended for cleaning catch-basins \$11,230.90
 Amount expended for manual flushing of sewers 6,958.94

The flushing gates at the outlet end of Tiber sewer were operated throughout the year with advantage to the sewer.

The tidal sewers and sediment chambers were cleaned as required.

Two flushing gangs were employed throughout the year flushing pipe sewers.

MAIN AND PIPE SEWERS.

The sewer in M street NW, between Seventh and Ninth streets, and in square 424 was constructed by W. F. Brenizer under contract 2941. These two sewers were constructed under contracts for the fiscal year 1901.

Sewers were constructed, under contracts, in O street SW., between Delaware avenue and James Creek Canal, square 330, and Florida avenue NW., between Tenth and Eleventh streets, and in B street SW., between Sixth and Tenth streets.

There were constructed by day labor 7,569 linear feet of sewers, varying in size from 6 inches to 4½ feet diameter (43 manholes), divided among 41 jobs, the average length per job being 184.6 linear feet, the average cost per job being \$514.605.

The sewer in Sixteenth street NW., between K and L streets, and in K street NW., between Fifteenth and Sixteenth streets, under contract 2841 with Adam McCandlish, was completed by day labor. Fifteen linear feet pipe sewer and 8 linear feet of bell section were constructed, costing \$216.27, which was charged to the account of Adam McCandlish.

There were also constructed 89 catch-basins, 2,309 linear feet connections, varying in size from 8 to 24 inches in diameter, 6 manholes, and 40.5 linear feet gutter inlet, divided among 64 jobs, the average length of connection per job being 36 linear feet, the average cost per basin job being \$106.962.

SUBURBAN SEWERS.

Sewers were constructed under contracts for the fiscal year 1901, in Nourse road, between Klinge Ford road and Connecticut avenue; Twenty-fourth street NW., between Massachusetts avenue and Bancroft; Howard avenue, between Anacostia River and Nicholas avenue; Nicholas avenue, from Howard avenue northward; Hartford street, between Ninth and Seventh streets, and Seventh

street, between Hartford and Galena streets, charged to the appropriation for suburban sewers, 1901.

Sewers were constructed under contracts in Eleventh street NW., between Florida avenue and Clifton street; Connecticut avenue, between Cathedral avenue and Rock Creek; west abutment of Massachusetts avenue bridge over Rock Creek, and Eighth street NE., between Hartford and Joliet streets.

There were constructed by day labor 5,609 linear feet pipe sewers, varying in size from 8 to 24 inches in diameter (39 manholes), divided among 36 jobs, the average length per job being 155.8 linear feet, the average cost per job being \$336.31.

ASSESSMENT AND PERMIT WORK.

Permit work.—There were constructed by day labor 9,212 linear feet of pipe sewers, varying in size from 8 to 21 inches in diameter (47 manholes), divided among 57 jobs, the average length per job being 161.6 linear feet, the average cost per job being \$244.013, and the average cost per foot being \$1.51.

Assessment system.—There were constructed by day labor 20,381 linear feet of pipe sewers, varying in size from 8 to 21 inches in diameter (87 manholes), divided among 65 jobs, the average length per job being 313.55 linear feet, the average cost per job being \$430.037, the average cost per foot being \$1.371; 12 catch-basins, 117 linear feet of pipe connections were constructed, divided among 11 jobs, the average length of connection laid per job being 10.64 linear feet, the average cost per job for basins constructed being \$96.72. Two catch-basins were abandoned.

AUTOMATIC FLUSHING TANKS.

Five flushing basins were constructed in various locations.

ARIZONA AVENUE SEWER.

The sewers in Arizona avenue, under contracts with W. F. Brenizer and R. A. Malone & Co., were completed. The trunk sewer in Arizona avenue is now complete from a point 900 feet north of the Potomac River to a point about 100 feet northward from Tunlaw road.

L STREET SEWER.

The sewer in L street NW., between Sixteenth and Twenty-first streets, under contract with P. D. Vinson, was completed.

REPLACING OBSTRUCTED SEWERS.

Under the appropriation for "Replacing obstructed sewers, 1901," the sewers in Thirteenth street SW., between B and D streets, Fourteenth street NW., between Rhode Island avenue and N street, and Twelfth street SW., between Virginia avenue and D street, aggregating 3,178 linear feet, were replaced under contracts.

On account of the death of contractor John Jacoby, the east side intercepting sewers, extension of Boundary sewer and the main sewer through the lands of Davidge and Trinity College were not completed.

Section A of the east side intercepting sewer was completed by day labor. New contracts were made for the completion of the other sewers as follows: Section B of the east side intercepting sewer with Andrew Gleeson; extension of the Boundary sewer with Arthur Cowsill, and main sewer through lands of Davidge and Trinity College, with M. F. Talty.

SEWAGE PUMPING PLANT.

The tide-gate chamber, outlet section, etc., were in course of construction under contract with Andrew Gleeson. Work still in progress at end of fiscal year.

The pumps and engines for the temporary pumping station were placed in position under contract by the Camden Iron Works.

LOW-AREA TRUNK SEWER.

There were constructed 1,007 linear feet of 3 feet 6 inches diameter sewer under contract with E. G. Gummell.

SEWAGE-DISPOSAL PROJECT.

Under the appropriation for the "Preparation of detailed plans and specifications for sewage-disposal system complete," surveys for the various trunk sewers, the inverted siphon crossing the Anacostia River, and the pumping station have been completed. The surveys for land to be acquired for the construction of the outfall sewer have not been fully completed.

The sizes, gradients, and sections of the trunk sewers and inverted siphon have been designed and the estimates of cost have been made. Detailed sheets of the various portions of the work and specifications for the same are being prepared and they will be completed, in all probability, within the present fiscal year. The work upon the project has followed the general lines indicated in the report of the board of sanitary engineers of 1890, with such modifications as additional study of the situation indicated.

For example, the amount of rainfall to be provided for by the large trunk sewer in B street and New Jersey avenue has been increased, thereby increasing the size of that sewer and also the capacity of the pumping machinery at the pumping station.

The line has been changed from B street, eastward, at Tenth street, to avoid the crowded streets adjacent to the Center Market and the Pennsylvania Railway station, the new line crossing the Mall and joining the line originally proposed in Third street, near Maryland avenue. The outlet section of the Four-and-a-half street sewer has been changed in location from M street to L street. The location for the inverted siphon has been changed so that its axis is about normal with the proposed channel lines and its length has been considerably reduced. Several trunk lines have been added to the project. First, a trunk sewer to provide the properties within the low section of the city adjacent to Pennsylvania avenue NW., between First and Fifteenth streets, with adequate sewerage facilities for cellars. Second, the extension of the east side intercepting sewer from Twelfth street east to Twenty-first street. Third, the extension of the northeast Boundary sewer from its present outlet to a point near Twenty-first and A streets NE. Work is now in progress upon the east side intercepting sewer, the extension of the Boundary sewer, the lower section of the sewer to drain the low area and the outlet section of the Tiber Creek and New Jersey avenue high-level intercepting sewer.

A contract for furnishing the pumps, boilers, and appurtenances for the pumping station has been made with the Allis-Chalmers Company of Milwaukee.

Messrs. Didden & Vogt were engaged, after an open competition, as architects to prepare plans for the pumping station.

The estimated amount required to complete the project, in addition to the amounts heretofore appropriated, is \$2,168,097.50.

The expenditures to date on account of completed work aggregates \$520,473.04.

The appropriation to date on account of work in progress aggregates \$1,814,000.

Upon the subject of the construction of service sewers I again invite attention to the absence of equity in the charges against property benefited thereby. The benefit to any piece of property by the construction of a sewer bears no relation to the cost of the portion of the sewer adjacent to the property, because the size of the sewer is determined by the amount of drainage contributed, which varies, being small in amount at the upper end and increasing in volume until the discharge end is reached. Properties connected with the smaller portion of the sewer are as fully served thereby as properties connected with the sewer further down the line, where the size has been increased. It would impose an onerous burden upon the properties abutting upon the large sewers to assess the cost of the sewer construction against the property. To obviate this, the larger sewers are constructed from appropriations of the general funds and the abutting properties do not pay any share of the cost, although they receive the same amount of benefit as properties which abut upon the smaller sewers. The frontage of the property upon the line of sewer does not afford a fair measure of the benefit, because as full and ample service may be secured if the sewer abuts a few feet upon the property as if the sewer abuts upon the whole frontage.

The area of the property served seems to afford the best measure of the value of the sewer service, because one of the main purposes of the sewer is to remove storm water, the amount of which varies directly with the area drained. For the average lot the rate of 1 cent per square foot of surface would represent the average cost of a sewer along the front of the lot which would be of proper size for its service; this rate is, therefore, recommended as a reasonable rate to apply to the assessment of all lots provided with access to the sewer system.

I would respectfully suggest that it would be a material help to the work of the office if the construction appropriations were so made that they would be available until expended instead of lapsing with the fiscal year. There is no apparent advantage in the present arrangement, and many disadvantages. I also suggest that an effort be made to raise the limit of expenditure permissible by day labor from \$1,000 to \$3,000. This is especially desirable for emergency and repair work.

TABLES.

Table 1 shows work performed under contracts.

Table 2 shows work performed under permit system.

Table 3 shows work performed under assessment system.

Table 4 shows work performed at the whole cost of the applicant.

Table 5 shows work performed by day labor charged to appropriation, main and pipe.

Table 6 shows work performed by day labor charged to appropriation, suburban.

Table 7 shows work performed by day labor charged to various appropriations.

Table 8 shows average cost per foot of sewers and the average cost of basins constructed by day labor.

Table 9 shows number of inspectors, foremen, and other employees of the sewer division, the offices of the chief clerk of the engineer department, disbursing officer, inspector of asphalts and cements, and the engineer department stables, temporarily employed, and the appropriations from which these employees were paid for the fiscal year ending June 30, 1902.

Table 10 shows the number of electric conduits laid during the fiscal year and the number of feet of electric conduits in use June 30, 1902.

RECAPITULATION.

	Miles.
Length of sewers constructed in the fiscal year 1902:	
Main sewers, 17,342 linear feet	3.284
Pipe sewers, 52,520 linear feet	9.947
Total sewers constructed	<u>13.231</u>
Total length of sewers, June 30, 1902:	
Main sewers	93.494
Pipe sewers	<u>338.127</u>
Total	431.621

Very respectfully, your obedient servant,

D. E. MCCOMB,
Superintendent of Sewers.

Maj. JOHN BIDDLE,
Corps of Engineers, U. S. Army,
Engineer Commissioner, District of Columbia.
(Through Captain Harding.)

TABLE 1.—*Statement of sewers constructed under contracts*

No. of contract.	Contractor.	Location.	Size of sewer.	Length of sewer.	Contract price per foot.
2942	P. D. Vinson	North Capitol street, between G and K streets.	10 feet diameter invert. 8 feet diameter invert. Transition section.	237.5	
2940	Lyons Bros	Thirteenth street SW., between B and D streets.	21-inch pipe 18-inch pipe 12-inch pipe	223.4 397.8 275.8	.85 .71 .75
2940	do	Fourteenth street NW., between Rhode Island avenue and N street.	15-inch pipe 12-inch pipe 10-inch pipe 18-inch pipe	274.4 298 407 520	.71 .68 .78
2941	W. F. Brenizer	Twelfth street SW., between Virginia avenue and D street.	15-inch pipe 12-inch pipe	241.7 540	.69 .62
2841	Adam McCandlish	Sixteenth street, between K and L streets, and K street, between Fifteenth and Sixteenth streets.	2 feet 4 inches by 2 feet 8 inches. 24-inch pipe Bell section	709 301.4 8	
2941	W. F. Brenizer	M street NW., between Seventh and Ninth streets, and in square 424.	21-inch pipe 18-inch pipe 15-inch pipe 12-inch pipe 15-inch pipe	287.2 148.2 235.6 262.9 2,520.6	.91 .80 .71 .625 .60
2908	J. P. Larguey	Nourse road, between Klingle road and Connecticut avenue.	2.5 by 3.75	440.3	
2908	do	Twenty-fourth street, between Massachusetts avenue and Bancroft street.			
2910	John Jacoby	Howard avenue, between Anacostia River and Nichols avenue.	24-inch pipe	1,898	1.00
		Nichols avenue from Howard avenue northward.	15-inch pipe	270	.85
2939	R. A. Malone & Co.	Hartford street, between Ninth and Seventh streets, and Seventh street, between Hartford and Galena streets.	3.25 by 4.875 24-inch pipe 21-inch pipe	349.2 343.3 333.7	2.00 2.00
2837	W. F. Brenizer	Arizona avenue	9 feet diameter 8 feet 9 inches diameter. 24-inch pipe	2,061 1,228.4 72	
2743	John Jacoby	East side intercepting sewer, between Twenty-second and A streets NE, and Twelfth and M streets SE.	6 feet 3 inches diameter. 6 feet diameter	1,402 1,181	
2743	do	East side intercepting sewer, between Twelfth and M streets SE, and pumping station.	6 feet 3 inches diameter.	4,041.9	
2870	P. D. Vinson	L street NW., between Twenty-first and Sixteenth streets.	Bell section 5 feet 9 inches diameter. 5 feet 6 inches diameter. 5 feet 3 inches diameter. 24-inch pipe	16.6 605 1,400.2 501 413.7	
3043	James A. Coyle	O street SW., between Delaware avenue and James Creek Canal.	21-inch pipe	721.9	.68
3043	do	Square 330 and Florida avenue between Tenth and Eleventh streets.	18-inch pipe	597.45	.60
3043	do	Eleventh street NW., between Florida avenue and Clifton street.	4 feet diameter 2.75 by 4.125 2 by 3 4 feet 3 inches diameter.	285 1,526.5 919 382.4	
3044	W. F. Brenizer	Connecticut avenue, between Cathedral avenue and Rock Creek.			
3048	Lyons Bros	West abutment Massachusetts avenue bridge over Rock Creek.			

^aIncludes \$9.25, cost of cleaning sewer by District of Columbia employees, charged to contractor.

^bIncludes \$114 charged to contractor.

^cIncludes \$216.27, cost of completing sewer by District of Columbia employees, charged to contractor.

^dIncludes work previously reported upon.

^eIncludes \$124 charged to contractor.

chargeable to appropriations for fiscal years 1901 and 1902.

Allowance to contractor.	Material furnished.		Cost of inspection.	Cost of repairs to pavements.	Total cost.	Appropriations.
	Chargeable.	Not chargeable.				
\$5,177.31	\$974.89	\$30.19	\$212.00	-----	\$6,304.39	Cleaning and repairing sewers and basins, 1901.
1,682.77	105.62	403.98	86.00	<i>a</i> \$126.79	2,405.16	Replacing obstructed sewers, 1901.
1,774.03	90.09	276.14	74.00	572.84	2,787.10	Do.
2,197.62	129.63	459.34	154.00	304.33	3,244.92	Do.
2,950.08	985.63	238.00	<i>b</i> 260.00	<i>c</i> 1,099.23	<i>d</i> 5,532.94	Main and pipe sewers, 1901.
1,728.61	117.60	434.85	94.00	219.41	2,594.47	Do.
2,414.69	297.21	790.34	224.00	42.36	3,768.60	Suburban sewers, 1901.
2,342.49	600.25	11.55	336.00	-----	3,290.20	Do.
3,455.11	366.41	1,639.78	412.00	138.19	6,011.49	Do.
3,404.70	688.26	465.93	<i>e</i> 124.00	-----	4,682.89	Do.
33,082.28	15,823.26	279.81	1,214.25	-----	<i>d</i> 50,399.60	Arizona avenue sewer.
31,218.48	3,419.10	-----	2,319.50	<i>f</i> 87.80	<i>d</i> 637,044.88	East side intercepting sewer between Twenty-second and A streets NE. and Twelfth and M streets SE.
65,863.37	6,240.80	-----	3,226.62	<i>h</i> 2,130.40	<i>j</i> 77,461.19	East side intercepting sewer between Twelfth and M streets SE. and pumping station.
14,372.04	5,264.96	60.40	<i>i</i> 954.00	<i>j</i> 8,454.19	<i>d</i> 29,105.59	L street sewer.
462.85	48.00	363.12	138.25	-----	1,012.22	Main and pipe sewers, 1902.
1,139.26	71.25	471.20	230.00	5.62	1,917.33	Do.
747.35	56.86	252.34	125.50	-----	1,182.05	Suburban sewers, 1902.
11,899.87	3,464.68	46.73	598.00	-----	16,009.28	Do.
3,375.80	725.62	1.44	<i>k</i> 180.00	-----	8,528.28	Do.

f Cost of removing water main at Twelfth and M streets SE., charged to contractor.*g* Work incomplete; payment made on account.*h* Charged to contractor; includes cost of repairs to car tracks on M street SE.*i* Includes \$118 charged to contractor.*j* Includes \$1,141.79 charged to contractor.*k* Includes \$102 charged to contractor.

TABLE 1.—*Statement of sewers constructed under contracts*

No. of contract.	Contractor.	Location.	Size of sewer.	Length of sewer.	Contract price per foot.
2889	John Jacoby.....	Extension of boundary.....	22 by 23½ feet invert. 8 feet 6 inches diameter. 8 feet 3 inches diameter.	636	Feet.
2939	R. A. Malone & Co.	Arizona avenue.....	8 feet diameter 7 feet 3 inches diameter. 7 feet diameter Tide-gate chamber. 12 feet by 10 feet 6 inches, D-shape.	1,193.4	
2893	Andrew Gleeson	Second street SE., between N street and Anacostia River.	Transition section. 14 feet by 14 feet 3 inches, D-shape. 3 feet 9 inches diameter.	50	
3044	W. F. Brenizer.....	B street, between Sixth and Tenth streets SW.	3 feet 6 inches diameter. 2.5 by 3.75..... 2 by 3..... 24-inch pipe.....	580	
3065	.....do.....	Eighth street NE., between Hartford and Joliet streets.	3 feet 6 inches diameter.	892	
3037	E. G. Gummel.....	Low-area trunk sewer (New Jersey avenue, between First and N streets SE.).	2.5 by 3.75..... 2 by 3..... 24-inch pipe.....	372	
2897	Camden Iron Works.	Second street and Georgia avenue SE.	Pumping plant.....	308	
3063	M. F. Talty.....	Through lands of W. D. Davidge and Trinity College.	5 feet 9 inches.....	249	
2965	John Jacoby.....	do.....	5-foot 9-inch sewer. 5-foot 9-inch invert. 6-foot sewer..... 6-foot invert.....	1,007	
				200	
				302	
				236	
				729	
				43	

^aIncludes work previously reported upon.^bWork incomplete; payment made on account.^cIncludes \$12 charged to contractor.

chargeable to appropriations for fiscal years 1901 and 1902—Continued.

Allowance to con- tractor.	Material fur- nished.		Cost of inspec- tion.	Cost of repairs to pave- ments.	Total cost.	Appropriations.
	Charge- able.	Not charge- able.				
\$17,633.30	\$6,408.61	.....	\$643.50	.....	(a b)	Extension of boundary sewer.
36,619.01	13,249.43	\$317.78	c1,523.25	.....	\$51,709.47	Arizona avenue, 1902.
59,395.10	18,225.40	.....	2,104.50	.....	b79,725.00	Sewage pumping plant, 1901.
6,124.95	1,501.33	22.91	464.00	d\$2,221.46	10,334.65	Main and pipe sewers, 1902.
2,998.21	1,104.87	215.28	156.00	.....	4,474.36	Suburban sewers, 1902.
14,578.90	1,779.10	.....	848.00	.....	b17,206.00	Low-area trunk sewer.
e9,598.50	.....	.....	.....	.....	b9,598.50	Sewage pumping plant.
2,330.29	861.30	.....	100.00	.....	b3,291.59	Main through lands of W. D. Davidge and Trinity College.
6,514.15	2,098.30	.....	520.00	.....	9,127.45	Do.

d Includes \$56.85 charged to contractor.

e Includes \$15.95, cost of ash pit under boiler.

TABLE 2.—*Statement of sewers laid under the appropriation for assessment*
VOLUNTARY

No. of order.	Location.	Pipe sewers laid (length in feet)							Manholes.	Branches.
		6-inch.	10-inch.	12-inch.	15-inch.	18-inch.	21-inch.	24-inch.		
29	Blair road, from Chestnut avenue northward.	743							3	10
36	Block 7, Bloomingdale	16								2
39	Block 9, Bloomingdale	16							1	3
48	Brightwood avenue, between Omaha street and Philadelphia avenue.	192								
52	Brown street, from Howard street northward.		205							5
	Connecticut avenue, between Nourse and Pierces Mill roads. ^b		684	648	1,257				9	
1	Detroit street NE., from North Capitol street eastward.						117			
6	Duncan street NE., between Fourteenth and Fifteenth streets.			361					1	8
5	Eighteenth street NW., between N and O streets.				176				1	1
17	Eighteenth street NW., between R and Riggs streets.	80							2	4
34	Eleventh street NW., between Clifton and Roanoke streets.		226							4
2	Fifth street NE., between V and W streets.			59					1	1
3	First street NW., between U and V streets.		116						1	7
7	Florida avenue NE., between New York avenue and First street.		160			24			1	2
9	Square 54		94							1
15	First street NW., between Randolph and S streets.		76						1	5
26	Square 529		53						1	
27	First street NW., between Randolph and S streets.		96						2	6
37	First street NW., between V and W streets.			346					1	17
50	First street NW., between Albany and Baltimore streets.			313					1	17
51	Square 509			91						5
56	Fourteenth street NE., between F and G streets.			148	18				2	2
43	Kalorama avenue NW., between Eighteenth street and Columbia road.		100							2
40	L street NE., between North Capitol and First streets.			234						1
53	Lamar place, between Eslin avenue and Thirteenth street.			145						2
33	Milwaukee street NW., between Wisconsin avenue and Thirty-sixth street.	259								8
11	Nineteenth street NW., between R and S streets.		102						2	3
12	Ninth street NW., between D and E streets.		100							5
20	North Capitol street, between Randolph and S streets.			99					1	6
21	North Capitol street, between Pierce and M streets.		106						1	2
35	North Capitol street, between Seaton and T streets.		96						1	6
38	North Capitol street, between R and Randolph streets.			205					1	5
8	O street NW., between Twenty-eighth and Twenty-ninth streets NW.	14								1
14	O street NW., between North Capitol and First streets.				11					1
24	Ohio avenue, between Twelfth and Thirteenth streets NW.				26					1
28	R street NW., between First and North Capitol streets.		11							1

^a Balance carried forward to job 35 permit.^b Constructed under contract 209 by M. F. McNamara & Co.^c Includes work previously reported upon. Work begun in fiscal year 1901; completed in fiscal year 1902.

and permit work and whole cost to applicant for fiscal year 1902.

SYSTEM.

Amount of deposit.	Cost to District of Columbia.	Cost to applicant.	Total cost.	Amount returned.	For whom done.	Overseer.	Date of completion.
\$578.21	\$578.21	\$578.21	\$1,156.42	.....	L. P. Shoemaker	Ward	Jan. 24, 1902
12.00	6.81	6.81	13.62	“\$5.19	Middaugh & Shan- non.	Lanigan	Feb. 17, 1902
12.00	7.33	7.34	14.67	4.66	.....do.....	.....do.....	Feb. 27, 1902
160.00	129.15	129.16	258.31	90.84	Mrs. Mary Heine	Ward	May 16, 1902
235.00	135.22	135.23	270.45	99.77	G. S. Cooper	.....do.....	June 2, 1902
5,691.00	3,821.59	3,821.59	7,643.18	1,869.41	E. J. Stellwagen	[Lamb Weller Pierce]	cMay 17, 1902
175.00	175.00	175.00	350.00	.....	Geo. W. Bulloch	Prince	Nov. 2, 1901
4381.10	363.83	363.83	727.66	17.27	H. N. Taplin	Thomas	July 29, 1901
219.54	219.54	219.54	439.08	.....	Mrs. E. H. G. Slater	[Condon Prince]	Nov. 25, 1901
85.00	85.00	85.00	170.00	.....	John H. Noland	Thomas	Dec. 31, 1901
190.00	181.59	181.59	363.18	8.41	C. Schneider's Sons	Lanigan	Feb. 12, 1902
70.00	43.41	43.41	86.82	26.59	Jno. Wirchhusen	.....do.....	July 3, 1901
80.00	64.12	64.13	128.25	15.87	Middaugh & Shan- non.	Ward	Aug. 29, 1901
171.00	139.40	139.40	278.80	31.60	Michael Esch	Prince	Sept. 30, 1901
77.00	68.29	68.30	136.59	8.70	T. F. Schneider, president.	Ward	Oct. 2, 1901
70.00	69.76	69.75	139.51	.25	F. A. Blundon	.....do.....	Dec. 7, 1901
35.00	35.00	35.00	70.00	.....	Isabelle Lenman	Prince	Apr. 23, 1902
98.00	82.19	82.20	164.39	15.80	Middaugh & Shan- non.	Ward	June 2, 1902
290.00	278.40	278.39	556.79	11.61	E. Speich	.....do.....	Mar. 1, 1902
265.00	187.45	187.46	374.91	77.54	Middaugh & Shan- non.	Prince	May 29, 1902
100.00	89.87	89.87	179.74	10.13	Harry Wardman	.....do.....	July 31, 1902
160.00	149.22	149.21	e 298.43	10.79	S. B. Priest	.....do.....	July 21, 1902
80.00	70.43	70.43	140.86	9.57	T. C. Noyes f	.....do.....	Apr. 5, 1902
200.00	150.96	150.97	301.93	49.03	Washington San- itary Improve- ment Co.	Ward	June 24, 1902
115.00	85.05	85.05	170.10	29.95	John Levy	.....do.....	June 4, 1902
145.00	145.00	145.00	290.00	.....	Thos. J. Fisher & Co.	Thomas	Jan. 24, 1902
149.00	99.45	99.46	198.91	49.54	Theo. Harding	Prince	Oct. 30, 1901
122.50	75.80	75.81	151.61	46.69	C. C. Duncanson	.....do.....	Do.
95.00	82.67	82.66	165.33	12.34	Middaugh & Shan- non.	Ward	Dec. 17, 1901
95.00	80.07	80.08	160.15	14.92	Mrs. C. B. Fisk, president.	.....do.....	June 27, 1902
991.19	87.46	87.47	174.93	3.72	Middaugh & Shan- non.	Lanigan	Mar. 21, 1902
180.00	179.17	179.16	358.33	.84	.....do.....	.....do.....	June 21, 1902
10.00	10.00	10.00	20.00	.....	Calvin Payne	Prince	Aug. 23, 1901
9.00	5.70	5.70	11.40	3.30	Terrell Pattison	Ward	Sept. 26, 1901
22.50	16.38	16.37	32.75	6.13	Theo. Schondau	Prince	Nov. 22, 1901
10.00	9.17	9.17	18.34	.83	Geo. R. Ferguson	.....do.....	Dec. 24, 1901

d Balance, \$61.10, brought forward from job 301. W. cost.

e Includes cost of repairs to pavements charged to the appropriation for the fiscal year 1903.

f For Washington Heights Presbyterian Church.

g \$5.19 brought forward from job 36 permit.

TABLE 2.—*Statement of sewers laid under the appropriation for assessment*
VOLUNTARY

No. of order.	Location.	Pipe sewers laid (length in feet).							Manholes.	Branches.
		8-inch.	10-inch.	12-inch.	15-inch.	18-inch.	21-inch.	24-inch.		
45	Randolph street NW., from Connecticut avenue eastward.	651							3	9
46	do	640							3	11
31	Sheridan street NW., between Piney Branch road and eastward.		123						1	6
10	Sixth street NE., between H and I streets.			44						1
13	Square 358		22							2
18	Thirty-fifth street NW., between Woodley road and Pierrepont street.		326						2	4
19	Twenty-first street NW., between P street and Massachusetts avenue.			30					1	
23	Third street NE., between Seaton and T streets.			161					2	1
25	Square 254			35						1
32	Thirteenth street SW., between B and C streets.		124						2	
41	Third street NW., between Indiana and Euclid streets.		152							4
47	Twenty-second street NW., between M and N streets.			17						1
49	Third street NW., between Seaton and S streets.		98	18					1	4
55	Thirty-first street NW., between Dumbarton avenue and O street.			118					1	5
57	U street NW., between Valley and Thirty-second streets.			32						1
58	Block 7, Washington Heights.									
16	Wisconsin avenue, between Woodley road and Pierrepont street.	171							91	3
54	Pennsylvania avenue NW., between Twelfth and Thirteenth streets.			130						5
4	Quiney street NE., from Third street westward.			11						1
22	Q street NW., between Twenty-second and Twenty-third streets.		35							1
42	Quincy street eastward from Connecticut avenue.	480							2	
44	do	515							3	10
Total		2,842	3,600	3,722	1,451	24	117	.....	56	219

^a Balance brought forward from job 44.^b Balance carried forward to job 46.^c Balance brought from job 45.^d Includes cost of repairs to pavements charged to the appropriation for the fiscal year 1903.^e Balance carried forward to fiscal year 1903.^f Work completed in fiscal year 1903.

and permit work and whole cost to applicant for fiscal year 1902—Continued.

SYSTEM—Continued.

Amount of deposit.	Cost to District of Columbia.	Cost to applicant.	Total cost.	Amount re-turned.	For whom done.	Overseer.	Date of completion.
(a)	\$507.02	\$507.03	\$1,014.05	(b)	E. J. Stellwagen	Ward	May 5, 1902
(c)	509.05 \$117.68	500.05 117.68	1,018.10 235.35	\$273.45	do Chas. Schneider	do Thomas	May 10, 1902 Jan. 9, 1902
30.00	17.03	17.04	34.07	12.96	Stetson & Rhine-lander	Ward	Aug. 27, 1901
24.00 255.00	17.51 199.07	17.51 199.07	35.02 398.14	6.49 55.93	Albert McIntosh Thos. J. Fisher & Co.	Thomas Ward	Oct. 11, 1901 Oct. 24, 1901
45.00	45.02	45.02	90.04	.98	Thos. F. Walsh	Prince	Nov. 26, 1901
175.00	127.92	127.93	255.85	47.07	L. D. Meline	do	Mar. 25, 1902
40.00 79.00	24.74 71.71	24.75 71.71	49.49 143.42	15.25 7.29	J. B. Larner S. L. Phillips	do Lanigan	Dec. 28, 1901 June 16, 1902
105.00	89.62	89.63	179.25	15.37	S. S. Lutz	do	Apr. 25, 1902
15.00	15.00	15.00	30.00	—	Mendenhall & Waters	do	May 8, 1902
100.00	69.55	69.56	139.11	30.44	L. D. Meline	Prince	May 17, 1902
144.00	105.84	105.84	211.68	38.16	W. D. Sullivan	do	June 13, 1902
40.00	29.37	29.37	458.74	10.63	L. D. Smoot	do	July 17, 1902
50.00	10.40	10.40	20.80	(e)	Major Frank Wheaton	do	(f)
115.00	9167.42	95.97	9263.39	19.03	Eleanor H. Griffin et al.	Ward	Oct. 17, 1901
150.00	107.67	107.67	215.34	h 42.33	Stilson Hutchins	do	Aug. 13, 1902
9.00	9.00	9.00	18.00	—	Washington Sanitary Improvement Co.	Lanigan	July 2, 1901
27.50	19.10	19.10	38.20	8.40	R. A. Chester	Prince	Nov. 16, 1901
1,833.75	236.13	236.13	472.26	(i)	E. J. Stellwagen	Ward	Apr. 3, 1902
(j)	338.00	308.00	616.18	(k)	do	do	Apr. 12, 1902
13,834.97	10,811.62	10,740.30	21,551.92	3,055.07			

a Cost of manhole, \$71.45, charged to appropriation for cleaning and repairing sewers and basins, 1902, and repaid to appropriation for assessment and permit work, 1902.

b Includes \$51.72, cost of repairs to pavements made in fiscal year 1902.

i Balance carried forward to job 44.

j Balance brought forward from job 42.

k Balance carried forward to job 45.

TABLE 3.—*Statement of sewers laid under the appropriation for assessment*
ASSESSMENT

No. of order.	Location.	Pipe sewers laid (length in feet).					
		8-inch.	10-inch.	12-inch.	15-inch.	18-inch.	21-inch.
140	Canal street, property yard.						
118	Adams Mill road, between Lanier avenue and Columbia road.		176				
136	A street SE., between Fifteenth and Sixteenth streets.			171.5			
100	Carroll avenue, between Maple avenue and Baltimore and Ohio Railroad.	600					
139	Canal street SW., between First and Second streets.			315			
143	Central avenue NW., between Erie and Huron streets.			150	150	210	
146	C street SE., between Twelfth and Thirteenth streets.		217	148			
170	California avenue, between Connecticut avenue and Phelps place (north side).			330.5			
171	California avenue, between Connecticut avenue and Phelps place (south side).			346.28			
112	Dunbarton avenue NW., between Thirtieth and Thirty-first streets.			395			
145	D street SE., between Thirteenth and Fourteenth streets.		117				
111	E street SE., between Sixteenth and Seventeenth streets.			341.5			
125	Eighth and K streets NW. (northeast corner).						
173	Eighth street NW., between Trenton and Utica streets.		188				
176	Eighth street NW., between Des Moines and Erie streets.	392.3					
107	First and B streets NE. (northeast corner).			3			
108	Fourteenth and E streets SE. (southwest corner).			30			
109	Four-and-a-half and L streets SW. (northwest corner).		6				
126	Fifteenth and East Capitol streets (southwest corner).		15				
128	Fourteenth and N streets NW. (northeast corner).						
130	Fifth and M streets NW. (southeast corner).			27			
133	Block 1, Fairview Heights.	300					
134	Square 592.			245			
138	Fourteenth and H streets NW. (northwest corner).			33			
148	Fourth street NE., between V and W streets.			340			
151	Fourteenth street NE., between Providence and Lansing streets.		300				
161	First and V streets NW. (northeast corner).						
162	Square 567.		63				
165	F street, between Thirteenth and Elliott streets NE.			181.35			
172	Florida avenue NE., between Twelfth and Thirteenth streets.			285.9			
129	G street SW., between Sixth and Seventh streets.		145				
144	Grant street, between Nichols avenue and Arthur street (Anacostia).		91	172			
	Harvard street, between Sherman and Brightwood avenues NW.					810.3	
113	Harvard street NW., between Eleventh and Thirteenth streets.			306			
114	do.			193			
152	Half street SE., between L and M streets (west side).			275			

a 27 corner and 27 side artificial basin tops constructed.

b Work begun in fiscal year 1901.

c Repairs to pavements made in fiscal year 1903 included in cost of work.

d The excessive cost of this work was due to the large amount of rock excavation.

and permit work and whole cost to applicant for fiscal year 1902—Continued.

SYSTEM.

Basins constructed.	Manholes.	Branches.	Cost to District of Columbia.	Cost to property owners.	Total cost.	Overseers.	Date of completion.
	1	4	\$99.46	\$99.45	\$290.58	Thomas Ward.	Jan. 27, 1902 Aug. 16, 1901
		10	95.74	95.75	191.49	Thomas	Nov. 6, 1901
	2	19	316.63	316.64	633.27	Prince	July 12, 1901
	2	3	233.83	233.84	467.67	Ward.	Oct. 27, 1901
	3	5	532.56	532.57	1,065.13	do.	Dec. 10, 1901
	2	18	291.54	291.55	583.09	Thomas	Dec. 12, 1901
	2	2	267.23	267.22	534.45	Ward.	July 21, 1901
	2	3	301.34	301.35	602.69	do.	Do. ^c
	2	7	494.92	494.93	989.85	Prince	Oct. 21, 1901
	1	8	107.91	107.91	215.82	Thomas	Mar. 14, 1902
	2	8	252.24	252.25	504.49	Ward.	Oct. 8, 1901
e 1					58.89	Lanigan.	Sept. 29, 1901
	1	5	102.99	102.99	205.98	Ward.	June 12, 1902
	2	19	203.18	203.18	406.36	do.	June 18, 1902
e 1					58.81	Lanigan.	Aug. 1, 1901
e 1					79.62	do.	Sept. 11, 1901
e 1					56.60	do.	July 27, 1901
e 1					71.53	do.	Sept. 30, 1901
e 1					e f 371	do.	Sept. 28, 1901
e 1					88.55	do.	Oct. 30, 1901
	1	12	130.63	130.64	261.27	Ward.	Oct. 19, 1901
	1	6	157.02	157.03	315.25	do.	Oct. 12, 1901
e 1					110.79	Lanigan.	Nov. 22, 1901
	1	1	179.00	179.00	358.00	Prince.	Dec. 15, 1901
	1	6	297.73	297.74	595.47	do.	Jan. 16, 1902
e 1					50.85	Lanigan.	Apr. 5, 1902
	1	6	46.84	46.85	93.69	do.	Apr. 25, 1902
	1	2	151.93	151.92	303.85	Thomas	May 5, 1902
		5	144.22	144.22	288.44	Ward.	June 30, 1902
	1	5	106.30	106.31	212.61	Prince.	Oct. 26, 1901
	2	4	184.52	184.52	369.04	do.	Mar. 14, 1902
	2	22	947.29	947.30	u 1,804.59	Beach.	Oct. 11, 1901
	2	11	383.11	383.12	766.23	Thomas.	Aug. 26, 1901
	1	11	255.13	255.14	510.27	do.	Sept. 4, 1901
	1	5	154.04	154.03	308.07	Lanigan.	Mar. 27, 1902

^e Work performed at request of surface department.^f One catch basin abandoned.^g Work performed under contract No. 3009 by Lyons Bros.

TABLE 3.—*Statement of sewers laid under the appropriation for assessment*
ASSESSMENT

No. of order.	Location.	Pipe sewers laid (length in feet).				
		8-inch.	10-inch.	12-inch.	15-inch.	18-inch. 21-inch.
153	Half street SE., between L and M streets (east side).		275.8			
164	Harewood avenue, between Maple avenue and Spruce street.		69	98		
178	Half street SE., between I and K streets.			256		
179	Half street SE., between K and L streets (east side).		186			
157	Half street SW., between O and P streets.			290		
160	Highland avenue, west of Connecticut avenue.	401				
101	Jackson street, between Pierce and Adams streets (Anacostia).			390		
102	Jefferson, from Taylor street eastward.			267.4	183.5	
106	Jackson street, between Pierce and Adams streets.			505		
120	I street NE., between Tenth and Eleventh streets.			108.5		
166	Ingraham street, between Brightwood avenue and Thirteenth street.	186				
127	Kenesaw avenue, between Sixteenth and Eighteenth streets NW.			294		
132	Kenesaw avenue, between Fifteenth and Sixteenth streets SW.			89.5		
177	Kentucky avenue, between D and E streets SE.		201.5	198.5		
110	Lansing street (Brookland), between Thirteenth and Fourteenth streets.		295.5			
150	do.	323.5				
158	Lincoln avenue NE., between Randolph and S streets.			208		
174	Lowell street NW., between Seventeenth and Eighteenth streets.		181	162.5		
115	M street NE., between North Capitol and I streets (south side).			402		
116	do.	384.5				
141	Massachusetts avenue, from Tenth street westward, NW.		111			
119	Morgan avenue NW., between Lamar place and Spring road.				180	175
103	New York avenue, between Twenty-first street and Virginia avenue NW.			172		
105	New Jersey avenue, between D and E streets SE.			108.5		
	Princeton street NW., between Brightwood and Sherman avenues.			787.5		
149	Providence street NE., between Thirteenth and Fourteenth streets.			660		
131	R. street, between Thirteenth and Fourteenth streets NW.					
147	Rock Creek Church road, between Whitney avenue and Spring road.			159	482.5	
156	Randolph street NW., between North Capitol and I streets.		138.4	170		
175	Rock Creek Church road, between New Hampshire avenue and Eighth street.			135		
122	Seventh street and Rhode Island avenue (southwest corner).					
142	Scott street NW., between Valley and Canton streets.		208.5			
159	Seventh street NW., between Vermilion and Umatilla streets.	151.5				394
135	Sixteenth street SE., between A and B streets.					
155	Sixth street NW., between K street and Massachusetts avenue.		85.8			3
163	Sixth and K streets NE. (northeast corner).			290		
169	South street NW., between Thirty-first and Thirty-second streets.			117		
117	Twenty-ninth street NW., between Q and Roads street.					

^a Work performed under contract No. 3009 by Lyon Bros.

and permit work and whole cost to applicant for fiscal year 1902—Continued.

SYSTEM—Continued.

Basins constructed.	Manholes.	Branches.	Cost to District of Columbia.	Cost to property owners.	Total cost.	Overseers.	Date of completion.
	1	6	\$131.14	\$131.15	\$262.29	Lanigan	Mar. 21, 1902
	2	9	135.79	135.78	271.57	..... do	June 27, 1902
		2	125.57	125.58	251.15	Ward	June 21, 1902
	1	4	106.75	106.74	213.49	..... do	Do.
	1	4	263.42	263.42	526.84	Prince	Mar. 21, 1902
	2	8	220.42	220.43	440.85	Ward	Mar. 26, 1902
	3	7	307.40	307.40	734.80	..... do	Aug. 27, 1901
	2	10	412.41	412.40	824.81	..... do	Aug. 1, 1901
	3	8	405.65	405.66	811.31	..... do	Aug. 26, 1901
	1	2	84.84	84.85	169.69	..... do	Oct. 8, 1901
		19	106.39	106.40	212.79	..... do	May 12, 1901
	1	2	166.54	166.54	333.08	..... do	Oct. 4, 1901
	1	1	81.59	81.60	163.19	..... do	Oct. 5, 1901
	2	14	296.89	296.90	593.79	..... do	June 30, 1901
	1	12	234.17	234.16	468.33	..... do	Sept. 23, 1901
	1	12	197.51	197.52	395.03	Prince	Jan. 23, 1902
	1	2	137.50	137.51	275.01	Ward	Mar. 15, 1902
	2	7	233.24	233.24	466.48	Prince	June 19, 1902
	2		288.60	288.60	577.20	Ward	Oct. 14, 1901
	2	6	254.73	254.73	509.46	..... do	Oct. 12, 1901
		4	89.72	89.72	179.44	..... do	Dec. 3, 1901
	1	5	373.58	373.59	747.17	..... do	Aug. 26, 1901
	1	3	126.87	126.86	253.73	..... do	Aug. 15, 1901
	1	6	118.83	118.84	237.67	Thomas	July 12, 1901
	2	11	684.73	684.73	^a 1,369.46	Beach	Sept. 7, 1901
	2	3	487.91	487.92	975.83	Prince	Jan. 8, 1902
					^b c 3.07	Lanigan	Oct. 1, 1901
	3	4	516.47	516.48	1,032.95	Ward	Dec. 31, 1901
	2	4	248.82	248.83	497.65	..... do	June 27, 1902
	1	8	104.80	104.80	209.60	Lanigan	June 17, 1902
<i>b 1</i>					74.32	..... do	Sept. 9, 1901
	1	18	138.13	138.13	276.26	Prince	Nov. 8, 1901
	1	3	83.28	83.27	166.55	Ward	Mar. 20, 1902
	2	8	490.57	490.57	981.14	Thomas	Nov. 5, 1901
	1	5	78.14	78.14	156.28	Lanigan	Mar. 15, 1902
<i>b 1</i>					55.67	..... do	Apr. 23, 1902
	2	18	254.07	254.07	508.14	Prince	June 7, 1902
		5	97.95	97.95	195.90	..... do	Sept. 18, 1901

^b Work performed at request of surface department. ^c One catch basin abandoned.

TABLE 3.—*Statement of sewers laid under the appropriation for assessment*

ASSESSMENT

No. of order.	Location.	Pipe sewers laid (length in feet).					
		8-inch.	10-inch.	12-inch.	15-inch.	18-inch.	21-inch.
124	Truxton Circle and North Capitol street, between Florida avenue and Quincy street.	.....	.....	227.1	.....	.....	.....
137	Thirty street NW., between Dumbarton avenue and O street.	.....	209	.....	.....	.....	.....
168	Third street NE., between V and W streets.	.....	93.5	.....	.....	.....	.....
104	Vine street, between Baltimore and Ohio Railroad and Maple avenue (Takoma Park).	336	.....	.....	.....	.....	.....
123	Whitney avenue NW., about 300 feet east of Brightwood avenue.	.....	.....	.....	.....	.....	.....
167	W street NE., between Third and Fourth streets.	.....	.....	116	.....	.....	.....
154	Wisconsin avenue NW., between Milwaukee and Newark streets.	.....	425.4	.....	.....	.....	.....
Total		2,527.30	7,206.70	9,772.53	816	1,507.30	175

TABLE 4.—

No. of order.	Location.	Pipe sewers laid (length in feet).				Manholes.	Basins.	Branches.
		8-in.	10-in.	12-in.	18-in.			
301	Duncan street NE., between Fourteenth and Fifteenth streets.	.....	.....	.....	.....	.....	.....	.....
300	Eighteenth street NW., between I and K streets.	.....	.....	.....	.....	1	.....	.....
304	First street NW., between S and Seaton streets.	.....	64	.....	.....	1	.....	5
308	Florida avenue NE., between Fourteenth and Fifteenth streets.	.....	.....	.....	.....	.....	.....	.....
303	North Capitol and M streets NW.	.....	.....	.....	.....	1	.....	.....
302	Seventeenth street NW., between I and K streets.	.....	.....	.....	.....	1	.....	.....
307	Seventeenth street NW., between G and Pennsylvania avenue.	.....	.....	9	3	.....	1	.....
305	Twenty-sixth street NW., between E and F streets.	.....	3	.....	6	1	.....	.....
306	Thirteenth and Ingraham streets (intersection).	.....	79	.....	.....	.....	2	.....
Total		82	64	9	9	5	1	7

^a Balance carried forward to 6 permit.^b Extra excavation for the construction of sewer.^c Connecting drain with main sewer under contract with private parties, deposit made for District of Columbia inspection.

and permit work and whole cost to applicant for fiscal year 1902—Continued.

SYSTEM—Continued.

Basins constructed.	Manholes.	Branches.	Cost to District of Columbia.	Cost to property owners.	Total cost.	Overseers.	Date of completion.
	2	5	\$167.12	\$167.11	\$334.23	Ward.....	Oct. 23, 1901
	1	8	163.36	163.36	326.72	Prince.....	Dec. 3, 1901
	1	4	54.62	54.63	109.25	.....do.....	May 15, 1902
	1	11	199.73	199.73	399.46	.....do.....	July 17, 1901
^a 2					120.96	Lanigan.....	Sept. 19, 1901
			63.82	63.82	127.64	Prince.....	May 12, 1902
	2	12	377.11	377.12	754.23	Thomas.....	Jan. 23, 1902
12	91	477	15,608.11	15,608.33	32,280.39		

^a Work performed at request of surface department.

Whole cost.

Amount of deposit.	Total cost.	Amount returned.	For whom done.	Overseer.	Date of completion.
\$304.00	\$242.90	(a)	H. N. Taplin.....	Thomas.....	^b July 31, 1901
40.00	38.85	\$1.15	S. S. Shedd & Bro.....	Condon.....	July 17, 1901
180.00	105.60	74.40	Bailey & Aiken.....	Lanigan.....	Apr. 2, 1901
^c 24.00	24.00		M. F. Talty.....	Lamb.....	June 14, 1902
38.00	36.04	1.96	J. R. Quinter.....	Lanigan.....	Dec. 18, 1901
35.00	34.89	.11	D. S. Williamson.....	Thomas.....	Dec. 5, 1901
215.00	116.03	(d)	W. W. Keblinger, agent.....	Lanigan.....	(e)
45.00	44.12	.88	S. S. Shedd & Bro.....	Prince.....	Apr. 3, 1902
90.00	59.25	30.75	Mrs. Carrie Madison.....	Ward.....	May 15, 1902
971.00	701.68	109.25			

^d Balance of deposit carried forward to fiscal year 1903.

^e Work completed in fiscal year 1903.

TABLE 5.—Main

No. of order.	Location.	Pipe sewers laid (length in feet.)			
		6-inch.	8-inch.	10-inch.	12-inch.
508	Canal street property yard				
580	Adams Mill road, between Lanier and Kansas avenues				
539	B street NW., between Sixth and Seventh streets			6	42
520	Canal street SE., between M and N streets (property yard)				12
524	Canal street SE., between M and N streets				
559	C street SE., between Twelfth and Thirteenth streets			83	
594	Cathedral avenue, under Connecticut avenue bridge				105
506	Connecticut avenue NW., just north of Florida avenue				
513	Columbia road and Eleventh street NW. (northwest corner)				3
516	Columbia road, just south of California avenue				
533	Connecticut avenue and R street NW. (northwest corner)				21
553	Block 39, Columbian College lands				3
500	Connecticut avenue, between Rock Creek bridge and Cathedral avenue				99
585	Columbia road and Twentieth street (northeast corner)				6
507	Dover and Thirteenth streets NE. (northwest corner)			24	
512	Dumbarton street NW., between Twenty-ninth and Thirtieth streets				
525	Delaware avenue and G street NE. (northeast and southeast corners)				63
526	Dumbarton street NW., between Twenty-ninth and Thirtieth streets				
530	Detroit and North Capitol streets (northeast and northwest corners)				66
556	D street SE., between Thirteenth and Fourteenth streets			77	
562	D street NW., crossing Twenty-third street			84	
603	Dumbarton street NW., between Thirty-first and Thirty-second streets				89
529	E street NW., between Ninth and Tenth streets				95
534	Erie street, between Champlain and Ontario avenues				42
540	Eight and M streets NW. (northwest and southeast corners)				27
563	Eighteenth and Lowell streets NW. (northeast corner)				51
566	Eleventh and Yale streets NW. (northwest and southwest corners)				45
505	Fourteenth street NW., just north of Florida avenue				
522	Fifteenth street NW., between H and I streets			95	
528	Fifteenth street NW., between F street and New York avenue				93
531	First and Randolph streets NW. (northwest corner)				12
538	Square 461, between Sixth and Seventh streets. B and Pennsylvania avenue NW			3	185
544	Fourteenth and T streets NW. (northeast corner)			18	3
549	Fifteenth and H streets NW. (northeast corner)				18
554	Fourth and V streets NE. (northeast corner)				15
567	First and Thomas streets NW. (northwest corner)				
575	Fourteenth and East Capitol streets (northwest corner)				21
578	Square 567, between First and Second, F and G streets NW				19
598	First and G streets NW. (northwest corner)			3	
514	Georgia avenue SE., between Fourteenth and Fifteenth streets				
505	Georgia avenue SE., between Third and Fourth streets, and in square 502				117
541	H street NE., between Thirteenth and Fourteenth streets				133
					21

^a60 corner and 40 side artificial basin tops constructed.^b66 linear feet 4½ feet diameter brick sewer reconstructed.^cIncludes \$5.54, cost of work by plumber.

and pipe sewers.

Pipe sewers laid (length in feet).				Manholes.	Basins.	Branches.	6-inch cast iron pipe. 4½-foot diameter.	Gutter inlet.	Ball section.	Cost of materials.	Cost of labor.	Cost of repairs to pavements.	Total cost.
15-inch.	18-inch.	21-inch.	24-inch.							\$227.13	\$197.70		\$424.83
										46.33	56.31		102.64
							660			233.53	290.56	\$129.54	1,272.63
										44.00	66.14		110.14
										57.45	39.37		96.82
										36.50	143.31		179.81
										66.38	107.72		174.10
										19.5	20.71		57.75
										27.52	21.69		49.21
										45.91	90.70		163.71
										33.99	36.22		73.61
										27.88	20.73		48.61
										243.86	342.18		586.04
										36.30	32.12		68.42
										33.04	37.81		70.85
										152.26	308.78		495.40
										52.00	70.38		122.38
										220.56	435.19		679.12
										53.51	84.77		148.99
										24.36	101.21		131.90
										40.61	135.19		175.80
										51.51	66.49		124.11
										231.83	491.61		914.75
										45.59	63.84		109.43
										41.05	66.59		107.64
										33.23	72.22		105.45
										59.84	114.16		174.00
										21.49	45.52		77.42
										154.57	366.38		548.72
										163.44	535.90		827.03
										32.98	38.95		83.44
										127.40	294.97		422.37
										32.43	33.06		70.46
										44.54	49.62		94.16
										31.88	39.13		71.01
										33.48	31.38		64.86
										26.45	29.87		59.71
										27.94	27.58		55.52
										84.78	97.88		182.66
										136.52	211.76		377.22
										26.49	35.89		69.57

^aShed constructed to be used in making artificial basin tops.^cIncludes \$8.04, cost of work by plumber.^fAwaiting bill for repairs to pavements.

TABLE 5.—*Main and pipe*

No. of order.	Location.	Pipe sewers laid (length in feet.)			
		6-inch.	8-inch.	10-inch.	12-inch.
605	Half street SE., crossing K street			18	63
590	I street NW., crossing Sixteenth street, and Sixteenth street, crossing I street				
601	Jefferson street east of Monroe street				42
602	Jefferson and Polk, Jefferson and Fillmore (southeast crossing)				45
519	Kramer street NE., between Sixteenth and Seventeenth streets (north side)			3	
523	Kramer street NE., between Sixteenth and Seventeenth streets (south side)			21	
546	K street NW., between Fifteenth and Sixteenth streets				
504	K street NW., between Thirty-fourth and Thirty-fifth streets			6	
510	LeDroit avenue NW., between Seaton and Thomas				
517	LeRoy place, just west of Columbia road				
505	L street SE., at intersection of Half street (south side)				72
577	L street NW., between Fifteenth street and Vermont avenue				
552	Meridian and Erie (northwest corner) and Central and Erie (northeast corner)				51
500	New York avenue NW., between Twenty-first and Virginia avenue				
501	N street NW., between Seventeenth and Eighteenth streets				23
509	New Jersey avenue between D and E streets SE				15
527	North Carolina and Pennsylvania avenues SE. (northeast corner)			126	
550	Nineteenth and T streets NW. (northwest corner)				36
581	North Capitol street between Randolph and S streets (east side)				27
591	N street NW., between Seventeenth and Eighteenth streets (north side)				186
535	Square 155, between Seventeenth, Eighteenth, Q, and Corcoran streets				
536	Square 155, between Seventeenth, Eighteenth, Q, and Corcoran streets				
569	O street NW., between Sixth and Seventh streets (south side)				
570	do				
572	Square 183, Sixteenth and Seventeenth, L and M streets NW				
573	O street NW., crossing Seventh street (south side)				
596	Square 186, between H and I streets and Sixteenth street and Connecticut avenue				
511	P street bridge, over Rock Creek, crossing	126			180
606	Pierce and Jefferson streets, Anacostia (southeast corner)				12
584	Quincy street NW., between Eighth and Ninth streets				21
504	Rhode Island avenue and T street NW. (intersection)				63
515	S street NW., just west of Florida avenue (south side)				42
518	School and Park streets NW. (southwest corner)		30		
521	Second and D streets SE. (northeast corner)			114	
547	South Capitol and M streets				21
548	South Capitol and O streets (northwest and northeast corners)			18	
574	Seventh street NW., between N and O streets				410
592	Seventh and P streets NW. (southwest corner)				15
503	Sixteenth street NE., near Rosedale street				12
532	Sixth and Summer streets NW. (southwest corner)				24
537	Sixteenth and Gale streets (northwest and southeast corners)				42
571	Sixth street NW., between K street and Massachusetts avenue			27	
579	Sixth street NE., between Orleans place and Morton place				24
582	Sixteenth and Rosedale streets NE. (northwest corner)				18

^a Includes \$22.04, cost of work by plumber.^b Includes \$11.55, cost of work by plumber.

sewers—Continued.

Pipe sewers laid (length in feet).				Manholes.	Basins.	Branches.	6-inch cast iron pipe	4½-foot diameter.	Gutter inlet.	Ball section.	Cost of materials.	Cost of labor.	Cost of repairs to pavements.	Total cost.
15-inch.	18-inch.	21-inch.	24-inch.											
135				1							\$52.61	\$37.02		\$109.63
				2							126.69	139.50	\$38.18	304.37
					1						28.91	50.91		79.82
					2						56.81	53.19		110.00
						1					26.71	18.67		45.38
						1					31.89	34.30		66.19
150											94.95	280.09	55.19	430.23
							1				20.75	23.13		43.88
15							1				26.08	14.78	39.67	80.53
							1				29.89	42.14	10.98	83.01
							2				49.78	89.35		139.13
101	282			2		7					377.51	954.12	442.73	1,774.36
						2					51.07	93.49	2.20	146.76
75				1							61.38	118.99		180.37
				1		12					106.16	^a 907.98	39.39	453.53
											5.78	22.11		27.89
						1					50.76	119.06	39.68	209.50
						1					39.83	50.47		90.30
						3					81.66	79.85		161.51
						6					73.33	^b 369.38	29.36	472.07
266				2		13					219.51	553.12	217.20	989.83
233				1		25					151.13	306.65	303.30	851.08
217	276			1		9					275.61	954.07	60.15	1,289.83
				1		8					175.81	502.89	37.10	715.80
243				1		3					128.78	266.59	45.12	440.49
69				1		144					58.14	174.27	14.78	247.19
				1							90.05	148.10	110.93	349.08
				1							112.88	^c 280.90	63.95	457.73
				1							34.79	34.92		69.71
				2							67.77	90.30		158.07
				1							41.57	49.04		90.61
12				1							32.00	41.78	4.69	78.56
				1							33.36	39.92		73.28
				1							55.44	135.39	72.30	263.13
63				1	2						96.17	130.42		226.59
				2							38.43	51.74		90.17
				2	22						187.96	^d 803.28	62.51	1,053.75
					1						32.23	31.57		63.80
					1						30.08	23.37		53.45
					1						35.92	45.78	5.51	87.21
					2						60.80	66.93		127.73
				1							25.60	42.46	11.23	79.29
				2							42.33	53.96		96.29
				1							23.43	30.28		53.71

^c Includes \$11.25, cost of work by plumber.^d Includes \$10.80, cost of work by plumber.

TABLE 5.—*Main and pipe*

No. of order.	Location.	Pipe sewers laid (length in feet).			
		6-inch.	8-inch.	10-inch.	12-inch.
586	Sixteenth street NW., crossing K street				
587	Sixteenth street NW., between I and K streets				
593	Sixteenth street NW., between H and I streets				192
597	Sixteenth and Rosedale streets NE. (southeast corner)				60
	Sixteenth street NW., between K and L streets, and K, between Fifteenth and Sixteenth streets				
502	Tenth and Frankfort streets NE. (northeast corner)				
542	Thirteenth and R streets NW. (northwest corner)				27
543	Third and Elm streets NW. (northeast corner)				9
545	Twenty-third and N streets NW. (southeast corner)				33
551	Thirteenth street NW., between Lydecker avenue and Lamar place				21
555	Tennessee avenue and Fifteenth street NE. (intersection)			12	
557	Twenty-fourth and S streets NW. (southeast, northeast, and northwest corners)				90
561	Twenty-second and Decatur streets (northwest and northeast corners)				12
558	Third and E streets SW. (southwest corner)				15
568	Twenty-fourth and Bancroft streets NW				60
588	Block No. 2, Trinidad				
589	Thirteenth street and Pennsylvania avenue SE. (southwest corner)				99
604	Square 1003, Twelfth and Thirteenth and H and Wyllis streets NE	261		21	403
583	Vermont avenue, between L street and Thomas circle				
576	Water street NW., between Twenty-fifth and Twenty-sixth streets				
599	Washington street, just east of Monroe (Anacostia) (south side)				6
600	Washington street, just east of Monroe (Anacostia) (north side)				9

sewers—Continued.

Pipe sewers laid (length in feet).								Cost of materials.	Cost of labor.	Cost of repairs to pavements.	Total cost.
15-inch.	18-inch.	21-inch.	24-inch.	Manholes.	Basins.	Branches.	6-inch cast iron pipe.				
							4½-foot diameter.	Gutter inlet.	Ball section.		
6	45	1						379.42	\$93.36	\$40.50	\$213.28
	339			1	9			347.83	521.55	38.92	908.30
				1				91.35	159.37	29.90	280.62
15					1				35.80	42.57	78.37
							8	33.53	182.74		b 216.27
								35.95	36.73		72.68
					1			48.65	49.42		98.07
					1			39.24	51.58		90.82
					1			33.99	30.37		64.36
					1			37.72	33.76		71.48
					1			21.63	20.62		42.25
					3			79.42	111.16		190.58
					2			37.76	72.87		110.63
					1			22.08	29.21		51.29
					2			51.28	99.35		150.73
				54	1			59.70	73.88		133.58
					1			41.25	69.33		110.58
						35		162.23	799.39		c 961.62
249						7		82.16	570.31	40.92	693.39
3		239	1		1			283.40	465.50		748.90
						1		18.40	23.42		41.82
						1		19.12	24.76		43.88

^a Includes \$33.84, cost of work by plumber.^b Completion of sewer, charged to appropriation for main and pipe sewers 1901, cost of same to be deducted from amounts due Adam McCandlish on contract 2841.^c Work completed in fiscal year 1903.

TABLE 6.—*Sub*

No. of order.	Location.	Pipe sewers laid (length in feet).		
		8-inch.	10-inch.	12-inch.
814	Binney street NW., from Fourteenth street westward.....			
807	Brightwood avenue, between Princeton and Bismarck streets.....			
834	Brightwood avenue NW., between Scott avenue and Rock Creek Church road.....			
802	Columbia street NW., between Sherman avenue and Eleventh street.....			9
810	Columbia street NW., from Fourteenth street westward.....			
813	Block 39, Columbian College lands.....			
825	Connecticut avenue NW., between Le Roy place and California avenue.....			
829	California avenue and Phelps place (intersection).....			72
831	Connecticut avenue, between California and Wyoming avenues.....			
811	Decatur place NW., between Florida avenue and Twenty-second street.....			
812	do.....			
835	Decatur place NW., between Twenty-second and Twenty-third streets.....			
816	Eighteenth street NW., between Grant and Lowell streets.....			
817	Eleventh and Clifton streets (intersection).....			33
832	Eighth street NW., between Trenton and Utica streets.....		148	
833	Eighteenth and Lowell streets (intersection).....			60
830	First street NW., crossing Albany street.....			
815	Grant street, Anacostia, from Nichols avenue eastward.....			117
806	Harvard street NW., between Eleventh and Thirteenth streets.....			
821	Harewood avenue NW., near north side Maple avenue.....			
820	Highland avenue NW., west of Connecticut avenue.....		67	
823	Ingraham street, between Brightwood avenue and Thirteenth street.....			154
803	Kramer street NE., between Sixteenth and Seventeenth streets.....			
801	Le Droit avenue, between Seaton and Thomas streets NW.....			
804	Lansing street, crossing Thirteenth street (Brookland).....		33	30
818	Lincoln avenue, crossing at Randolph street.....			
822	Lincoln avenue NE., from T street northward.....			
800	Maple avenue, between Baltimore and Ohio R. R. and Carroll avenue.....			39
809	Ontario avenue, from Erie street southward.....			
808	Q street NW., between Truxton circle and Florida avenue.....			81
805	School street NW., between Grant and Park streets.....		105	
819	Seventh street NW., between Vermillion and Umatilla streets.....	239		
827	Third street NE., between V and W streets.....	83		
828	Thirteenth and Ingraham streets NW.....			54
824	W street NE., between Third and Fourth streets.....			122
826	W street NE., between Third and Fourth streets (south side).....			162
Total.....		389	605	614

OPERATIONS OF THE ENGINEER DEPARTMENT, D. C. 139

urban sewers, 1902.

Pipe sewers laid (length in feet).				Man-holes.	Branches.	Cost of materials.	Cost of labor.	Cost of repairs to pavements.	Total cost.
15-inch.	18-inch.	21-inch.	24-inch.						
168	376				6	\$92.89	\$254.51	\$18.50	\$365.90
				2	5	273.66	713.99	54.10	1,041.75
146					1	101.76	188.87	^a 16.57	307.20
66	69	81		3		211.21	360.95		572.16
		163	30		2	205.35	524.97		730.32
	177					116.95	^b 302.61		419.56
313				2	2	252.82	598.18		851.00
				1		43.66	76.98	^a 10.96	131.60
327					6	181.13	^c 581.63		762.76
		33		1		57.05	69.15		126.20
		465		3		463.18	663.21		1,126.39
354				1		210.67	337.85		548.52
330				1		192.38	528.99		721.37
				1		28.93	64.19		93.12
				2		47.14	94.85		141.99
				1		44.48	70.51		114.99
51				1		47.78	56.93		104.71
				1		58.37	94.46	5.04	157.87
24				1		39.01	104.42		143.43
39				1		49.12	63.44		112.56
				1	2	35.72	63.64		99.36
				1	2	74.15	106.48		180.63
195	9			2		170.80	369.18		539.98
				1		20.24	27.23	^d 12.47	50.94
				1		43.50	75.06		118.56
36	9		381	1		39.53	56.68		96.21
				2	3	496.87	564.37		1,061.24
				1		34.86	44.84		^d 79.70
	159			1		119.10	167.53		286.63
				1		49.88	87.75	8.86	146.49
				1	3	47.73	94.01		141.74
				1	4	68.67	164.24		232.91
					1	23.62	56.38		80.00
						35.15	49.47		84.62
					1	66.76	96.65		163.41
					1	74.60	87.69		162.29
1,332	1,507	718	444	39	38	4,118.72	7,861.89	126.50	12,107.11

^aRepairs to pavements made in fiscal year 1903.^bIncludes \$20.09 cost of work by plumber.^cIncludes \$30.06 cost of work by plumber.^dWork begun in fiscal year 1901.

TABLE 7.—*Miscellaneous appropriations in*

No. of order.	Location.	Pipe sewers laid (length in feet).					
		6-inch.	8-inch.	10-inch.	12-inch.	15-inch.	24-inch.
1043	Arizona avenue and Joliet street (intersection)						
1000	Arizona avenue NW., near Tunlaw road						
1036	Bladensburg road, between H and Lewis streets					30	3
	Bunker Hill road, between Fourth and Seventh streets						
	Canal street SE., between M and N streets						
1038	California avenue NW., from Connecticut avenue westward					414	
1017	College street NW., about 300 feet east of Fourth street						
1, T.C. & N.J.A.	E street SE., just east of Canal street					15	
1015	Eleventh street NW., between L street and Massachusetts avenue						
1030	Sixth and L streets SE. (northwest corner)					3	
1003	Second street and Massachusetts avenue NE					6	
1027	East side interceptor, between Twelfth and M streets and pumping station						
1034	do						
1033	E street SE., between Tenth and Eleventh streets					3	
1001	Fifth and F streets NE. (southwest and southeast corners)					3	3
1023	Fifteenth street NE., between E and H streets				12	36	
1007	G street NE., between Second and Third streets					45	
1009	Fifteenth and F streets NE. (southwest corner)						
1014	G street, just west of Thirteenth street NE					33	
1024	H street and Delaware avenue NE. (southeast corner)					18	
1028	Harrison and Monroe streets (Anacostia)						
1029	Kirby street and New York avenue NW. (northwest corner)						
1022	L street NW., between New Hampshire avenue and Twenty-third street					15	
1018	M street NW., between Eighth and Ninth streets					33	
1013	O street, south side, just west of Ninth street NW				45		
1008	P street and New Jersey avenue NW. (southwest and northwest corners)					24	
1005	South Carolina avenue and Eleventh street SE. (northeast corner)					6	
1042	Second street SW., between C street and Virginia avenue					51	
1010	Sixth and I streets NE. (southwest corner)					9	
1011	Sixth and H streets NE. (northwest corner)					3	
1012	Thirteenth and G streets NE. (southeast corner)						
1031	Fourth and Elm streets NW. (southeast and southwest corners)					3	
1039	Fifteenth street SE. south of K street						
1026	Twelfth and M streets SE						
1041	G street just east of Twenty-third street NW					21	
1019	North Capitol and O streets (northwest corner)						
1040	Seventeenth street NW., between T street and Florida avenue					21	
1006	Lansing street NE., between Twelfth and Thirteenth streets					237	
1037	Maryland avenue SW., between Third and Four-and-a-half streets					39	75
1020	Nineteenth street NW., between R street and Florida avenue						6 3
1035	New Jersey avenue SE. (at foot of)						
	Second and N streets SE						
	do						

^aConstructing bulkhead across mouth of sewer.^bWork begun in fiscal year 1901.^cConstructing temporary office building.^dIncludes \$18.55, cost of work by plumber.^eSpecial manhole constructed.^fCost of this work charged to amounts due J. K. Murphy on contract No. 2446.^gWatching excavation, cost to be charged to account of Jno. Jacoby.^hCompleting sewer, cost to be charged to account of Jno. Jacoby.ⁱRemoving construction materials and derrick from Water street, cost to be charged to account of Jno. Jacoby.

fiscal year 1902; work performed by day labor.

$\frac{1}{4}$ -inch lead connection.	Branches.	Manholes adjusted.	Manholes constructed.	Cost of materials.	Cost of labor and contingencies.	Cost of repairs to pavements.	Total cost.	Appropriations.
				\$76.37	\$55.50		\$131.87	Arizona avenue sewer, 1902.
				3.40	50.81		^a 54.21	Do.
		4		100.76	140.46		^b 241.22	Bladensburg road, 1901.
				15.17	20.71		35.88	Grading and macadamizing Bunker Hill road.
				633.87	467.43		^c 1,101.30	Sewage-disposal pumping station, 1902.
	6	1		130.38	^d 530.69		661.07	Grading Connecticut avenue.
				49.96	130.44		180.40	Extension high-service system, 1902.
				1	16.44	36.36	^e 52.80	Tiber Creek and New Jersey avenue high-level interceptor.
					8.48	4.13	12.61	Sidewalks and curbs around public reservations.
				1	25.05	37.47	62.52	Do.
				1	25.76	34.30	60.06	Sidewalks and curbs.
					1.43	91.50	^g 92.93	East side interceptor to New Jersey avenue.
				60.36	754.15		^h 814.51	Do.
				22.31	33.98		56.29	Improvements and repairs, southeast section.
				2	35.83	55.75	91.58	Improvements and repairs, northeast section.
				7	104.84	187.23	292.07	Do.
				5	92.66	158.74	251.40	Do.
				1	17.75	37.10	54.85	Repairs to streets, 1902.
				1	37.38	65.03	102.41	Do.
				1	33.56	43.94	77.50	Do.
				1	2.66	6.67	9.33	Do.
				1	2.79	6.00	8.79	Do.
				3	56.69	82.08	138.77	Do.
				2	54.80	64.95	119.75	Do.
				1	39.34	49.98	89.32	Do.
				2	42.20	52.97	95.17	Do.
				1	19.37	36.47	55.84	Do.
				4	84.14	149.97	234.11	Do.
				1	21.04	32.69	53.73	Do.
				1	19.24	33.31	52.55	Do.
				1	19.38	31.63	51.01	Do.
				2	29.25	60.65	89.90	Paving Elm street between Third and Fourth streets.
						13.13	ⁱ 13.13	East side interceptor to Twelfth street.
				1	213.92	1,074.74	^j 1,288.66	Do.
					33.55	36.20	69.75	Improvements and repairs, northwest section.
				1	27.77	28.04	\$23.64	Do.
				6	90.25	192.18	282.43	Do.
	1				48.16	166.78	214.94	House, lot, and furniture for engine house, Brookland.
				5	99.98	177.05	277.03	Improvements and repairs, southwest section.
				3	76.94	87.26	164.20	Repairs to streets, avenues, and alleys, 1902.
					5.19	705.37	^l 710.56	Sewage pumping plant, 1901.
					807.24	^m 894.08	ⁿ 1,701.32	Do.
					484.52	^o 660.13	^p 1,144.65	Do.

^j Repairing sewer, cost charged to account of Jno. Jacoby.^k Constructing drain around engine house.^l Dredging space in front of discharge conduit.^m Includes \$48.76, cost of work by plumber.ⁿ Constructing building for temporary sewage pumping plant.^o Includes \$31.15, cost of work by plumber.^p Constructing foundation for pumps and engines at sewage pumping plant.

TABLE 7.—*Miscellaneous appropriations in fiscal year*

No. of order.	Location.	Pipe sewers laid (length in feet).					
		6-inch.	8-inch.	10-inch.	12-inch.	15-inch.	24-inch.
1021	Prospect street NE. from Lincoln avenue eastward.....	142					
1016	Sixteenth and Gales streets NE. (northeast and southwest corners).....			42			
1002	Third street NW., between K and L streets.....	a 350					
1032	Thirty-second street NW., between Q and U streets.....				36		
1004	Whitney avenue, between Sherman and Brightwood avenues.....	b 377					
	Lands of Davidge and Trinity College.....						
1siphon.	Chestnut and Magnolia avenues, Takoma Park.....	3					
2siphons.	Various.....	3	60				
	Total.....	1,008	247	57	918	36	3

^aConstructing subdrain around Banneker school building.^bConstructing drain.

1902; work performed by day labor—Continued.

4-inch lead connection.		Branches.		Manholes adjusted.		Manholes constructed.		Basins adjusted.		Basins constructed.		Cost of materials.	Cost of labor and contingencies.	Cost of repairs to pavements.	Total cost.	Appropriations.
	2			1				2		44.70		84.81			\$193.76	Twelve-room building, second division, Eckington. Paving Gales street.
	1									77.81		195.83		\$63.30	336.94	Repairs and improvements to school buildings and grounds. Paving Thirty-second street. Site and erection station house north of Florida avenue.
	1					4	2			67.72		90.57			158.29	Main through lands of Davidge and Trinity College.
										105.45		233.18		63.63	402.26	Automatic flushing tanks, 1902. Do.
										1.33		139.49			140.82	
15				1		1				53.89		67.81			121.70	
75						4				270.68		399.95			670.63	
90	11	7	3	11	62					4,442.13		8,933.08		150.57	13,525.78	

e Watching sewer trench, cost charged to account of Jno. Jacoby.

TABLE 8.—*Average cost of materials and labor per linear foot of pipe sewers constructed by day labor, also average cost of basins.*

[In this table it is assumed that the cost of materials used in basin connections is the same as that in the same size sewer; it is also assumed that on account of the difference in depth of excavation the cost of labor is half the cost of that of the same size sewer. This table does not embrace the cost of work of exceptionally difficult construction.]

Size of sewers.	Length.	Cost of materials.	Cost of labor.	Total cost.
		<i>Feet.</i>	<i>Per foot.</i>	<i>Per foot.</i>
8-inch.....	5,900	\$0.325	\$0.83	\$1,153
10-inch.....	9,285	.413+	.973	1,386
12-inch.....	15,550	.465	1.035	1.50
15-inch.....	3,873	.621+	1.46+	2.081
18-inch.....	3,327	.778	1.736+	2.514
21-inch.....	1,907	.958	1.91	2.868
24-inch.....	901	1.231+	2.427+	3.658
8-inch connection.....	75	.323	.415	.738
10-inch connection.....	647	.413	.487	.90
12-inch connection.....	1,899	.465	.517	.982
15-inch connection.....	201	.621	.73	1.351
18-inch connection.....	222	.778	.868	1.646
24-inch connection.....	3	1.231	1.213	2.444
Basins constructed.....	158	18.732	27.132	45.864

TABLE 9.—*Number of foremen, inspectors, and other employees of the sewer division, office of the chief clerk engineer department, disbursing officer, inspector of asphalts and cements, and of the engineer stables, temporarily employed, and appropriations from which paid, for fiscal year ending June 30, 1902.*

Class.	Number employed.	Cleaning and repairing sewers and basins.	Replacing obstructed sewers.	Main and pipe sewers.	Suburban sewers.	Assessment, permit, and whole cost to applicant.
Foremen	12	\$0,556.02	-----	\$1,424.75	\$596.50	\$1,994.01
Inspectors	15	212.00	\$362.00	886.25	1,878.00	708.00
Other employees	406	31,392.05	-----	16,147.61	8,383.71	29,112.54
Total	433	38,160.07	362.00	18,458.61	10,858.21	31,814.55

Class.	Preparation, plans, and specifications, sewage-disposal system.	Arizona avenue sewer.	Automatic flushing tanks.	East side intercepting Twelfth street SE, and pumping station.	East side intercepting Twenty-second and A streets NE, and Twelfth street SE.	Tiber Creek and New Jersey avenue high-level intercepting sewer.
Foremen	-----	-----	-----	-----	-----	-----
Inspectors	-----	\$8.50	\$42.00	\$12.00	\$223.00	\$5.00
Other employees	\$6,351.65	1,933.50	426.75	1,066.00	662.00	31.36
Total	6,351.65	3,029.71	468.75	1,944.12	3,169.86	36.36

Class.	L street sewer.	Sewage pumping plant.	Extension of boundary sewer.	Low-area trunk sewer	Main through grounds of Davidge and Trinity College.	Emergency fund.
Foremen	-----	\$200.75	-----	-----	-----	\$49.23
Inspectors	\$170.00	2,295.50	\$643.50	\$848.00	\$616.00	243.19
Other employees	-----	3,359.67	1,027.40	737.87	607.41	-----
Total	170.00	7,625.92	1,670.90	1,585.87	1,223.41	292.44

TABLE 9.—Number of foremen, inspectors, and other employees of the sewer division, office of the chief clerk engineer department, etc.—Continued.

Class.	Bladensburg road.	Grading and macadamizing Bunker Hill road.	Grading Connecticut avenue.	Extension high-service system.	Sidewalks and curbs around public reservations.	Improvements and repairs, SE. section.
Foremen	\$7.00	\$3.00	\$35.00	\$11.00	\$6.00	\$4.00
Other employees	121.97	16.00	445.66	110.85	51.02	27.30
Total	128.97	19.00	480.66	121.85	57.02	31.30

Class.	Improvements and repairs, NE. section.	Improvements and repairs, NW. section.	Sidewalks and curbs.	Repairs to streets.	Paving Elm street between Third and Fourth streets.	House, lot, and furniture for engine house, Brookland.
Foremen	\$34.00	\$21.00	\$4.00	\$68.50	\$10.00	\$11.00
Other employees	335.57	214.87	27.44	572.43	74.10	145.54
Total	369.57	235.87	31.44	640.93	84.10	156.54

Class.	Improvements and repairs, SW.	Repairs to streets, avenues, and alleys.	Twelve-room building, second division, Eckington.	Paving Gales street.	Repairs and improvements to school buildings and grounds.	Paving Third street.	Site and erection station house north of Florida avenue.
Foremen	\$15.00	\$8.00	\$7.00	\$7.00	\$18.00	\$9.00	\$24.00
Other employees	148.86	77.95	127.16	71.64	164.80	74.03	190.02
Total	163.86	85.95	134.16	78.64	182.80	83.03	214.02

WASHINGTON, August 21, 1902.

SIR: I have the honor to submit the following tabulated statement of the amount of conduits laid during the fiscal year ending June 30, 1902.

Very respectfully,

GEO. W. WALLACE,
Inspector, Sewer Division.

Mr. D. E. McCOMB,

Superintendent of Sewers, District of Columbia.

TABLE 10.—Amount of conduits laid from July 1, 1901, to June 30, 1902.

No. of duct.	United States Electric Lighting Co.		Potomac Electric Power Co.		District of Columbia.		United States Government.	
	Conduit.	Duct.	Conduit.	Duct.	Conduit.	Duct.	Conduit.	Duct.
	Feet.	Feet.	Feet.	Feet.	Feet. 3,191	Feet. 3,191	Feet.	Feet.
1	97	194						
2a	5,123	20,492	27	108			1,056	4,224
4	466	3,728						
8	336	8,064						
24	2,049	57,372						
Total	8,071	89,850	27	108	3,191	3,191	1,056	4,224

^a Existing 2-way increased to 4-way.

NUMBER OF MANHOLES AND HAND-HOLES BUILT.

	Manholes.	Hand-holes.
United States Electric Lighting Co.	97	117
Chesapeake and Potomac Telephone Co.	2	
Potomac Electric Power Co.	4	10
District of Columbia.	21	
City and Suburban Railway Co.	1	
United States Government.	7	
Western Union Telegraph Co.	1	
Postal Telegraph and Cable Co.	2	
Total	135	127

SUMMARY OF CONDUITS IN USE JUNE 30, 1902.

No. of duct.	United States Electric Light- ing Co.		Chesapeake and Potomac Tele- phone Co.		Potomac Electric Power Co.	
	Conduit.	Duct.	Conduit.	Duct.	Conduit.	Duct.
1	Feet.	Feet.	Feet.	Feet.	Feet.	Feet.
26,177	26,177	15,506	15,506	1,557	1,557	
128,223	236,446	4,354	8,708	766	1,332	
3	236	708				
4	78,332	313,328	600	2,640	6,046	24,184
6	35,461	212,766	23,185	139,110	9,488	56,928
7			82	574		
8	11,818	94,544	18,000	144,720	8,634	69,072
9			114	1,026	7,288	65,592
10	88	880				
12	1,491	17,892	4,963	59,356	37,979	455,748
13			212	2,756	374	4,962
14	1,224	18,136				
15	68	1,020				
16	2,793	44,688	5,825	93,200	1,314	21,024
17			636	10,812		
18			1,576	28,368		
20			26	520	85	1,700
24	2,435	58,440	2,072	49,728		
25			304	7,600		
28	2,049	57,372				
30	53	1,590				
32			485	15,520		
36	3,854	138,744	26	936		
40			1,589	63,560		
44					424	18,656
56			749	41,944	7	406
58						
64	106	6,784	176	11,264		
72			76	5,472		
Total	294,408	1,249,515	80,796	703,610	73,962	721,361

No. of duct.	Brightwood Rail- way Co.		District of Co- lumbia.		Private conduits.	
	Conduit.	Duct.	Conduit.	Duct.	Conduit.	Duct.
1	Feet.	Feet.	Feet.	Feet.	Feet.	Feet.
2			6,568	6,568	30	30
4	13	26	80	160	227	454
6			44	176		
8	176	1,408	711	4,296		
Total	189	1,434	7,403	11,170	257	484

OPERATIONS OF THE ENGINEER DEPARTMENT, D. C. 147

SUMMARY OF CONDUITS IN USE JUNE 30, 1902—Continued.

No. of duct.	Postal Telegraph and Cable Co.		United States Government.		Anacostia and Potomac R. R. Co.		Capital Trac-tion Co.	
	Conduit.	Duct.	Conduit.	Duct.	Conduit.	Duct.	Conduit.	Duct.
	Feet.	Feet.	Feet.	Feet.	Feet.	Feet.	Feet.	Feet.
1		13,236					15,742	31,484
2							8,720	34,880
4		1,427	5,708	1,251	5,004	176	704	7,320
6								43,920
7							29	203
8						159	1,272	2,761
10						245	2,450	22,088
14								4,257
22								9,109
26								280
								7,280
Total		14,663	18,944	1,251	5,004	580	4,426	48,218
								399,851

No. of duct.	Metropolitan R. R. Co.		City and Suburban R. R. Co.		Total.	
	Conduit.	Duct.	Conduit.	Duct.	Conduit.	Duct.
	Feet.	Feet.	Feet.	Feet.	Feet.	Feet.
1					(33,164	63,164
2					149,405	298,810
3					236	708
4		21,661	86,644	11,040	44,160	129,357
6				5,117	30,702	81,282
7						111
8				13,248	105,984	54,886
9						439,088
10				8,030	80,300	7,402
12		11,981	136,572	77	924	8,363
13						83,630
14				1,880	23,320	55,891
15						670,692
16						586
17						7,718
18				2,214	39,852	7,361
20						104,054
22				134	2,948	68
24						1,020
25						9,982
26						158,912
28				87	2,436	636
30						10,812
32						2,220
36						134
38				193	7,334	9,243
40						203,346
44						4,507
56						108,168
58						304
64						7,600
72						280
Total		33,042	223,216	42,020	340,960	596,789
						3,679,975

REPORT OF THE INSPECTOR OF PLUMBING.

WASHINGTON, D. C., August 25, 1902.

SIR: I have the honor to submit the twentieth annual report of work performed by the plumbing inspection division for the fiscal year ending June 30, 1902:

Until January 26, 1902, this office was under the direction of Mr. Charles B. Ball, as it had been since November 20, 1894. On January 26, Mr. Ball tendered his resignation to the Board of Commissioners, District of Columbia, in order to accept an appointment in New York City as chief sanitary inspector of the tenement-house department. Since February 6, having been appointed to fill the place made vacant by the resignation of Mr. Ball, the responsibilities of the office have devolved upon myself.

INSPECTIONS AND RECORDS.

The total number of inspections under the direction of this office was 22,621, an increase of 929 over those of the previous year. These comprise 3,868 examinations of existing plumbing; 7,126 inspections of remodeling, extensions, and repairs; 6,017 inspections of plumbing in new buildings; 1,996 peppermint tests; 1,283 inspections of gas fitting and gas fixtures; 658 inspections of lead water-service pipes; 754 sewer laterals tapped into main sewers; 55 new terra cotta house sewers, and 760 repairs to terra cotta sewers.

The number of notices personally served upon property owners and derelict registered plumbers was 104. The number of letters written and orders and indorsements made amount to 1,721, the detail of which includes miscellaneous letters, 279; letters to master plumbers, 248; orders to repair plumbing and gas fitting, 430; indorsements on communications forwarded, 639; letters to the Engineer Commissioner and other District officials, 125, and specifications for plumbing work in District buildings and houses into which sewer and water have been introduced by order of the health officer, 19.

Plumbing plans were examined and approved and certificates issued for 1,008 new buildings, an increase over last year of 37.

PLUMBING IN PUBLIC SCHOOLS.

The appropriation of \$25,000 for repairs to and changes in plumbing in public schools resulted in the preparation of plans and specifications and the renovation of the plumbing in the Lincoln, Mott, and Randall school buildings and the erection of a single structure containing a boiler room and toilet facilities for the Addison and Curtis schools. The work in the first three schools mentioned consisted in detached single-story toilet buildings fully equipped with approved types of fixtures and provided in each case with an independent steam heating apparatus.

The plumbing work proposed for the fiscal year ending June 30, 1903, includes new toilet facilities for the Morse, Maury, Amidon, Wormley, Twining, and Blair schools, the fixtures to be located in each case in the basement with necessary small fixtures for the upper floors. All the schools mentioned have very antiquated plumbing arrangements located in inferior outside buildings, with no possible means of protection from frost.

DRAINAGE OF LOTS.

In connection with the expenditures from the emergency fund for the enforcement of the provisions of section 4 of an act to provide for the drainage of lots in the District of Columbia, approved May 19, 1896, I would respectfully state that during the fiscal year ending June 30, 1901, plans and specifications were prepared and bids received in five separate cases, embracing 10 premises, for the introduction of water and sewer connections. These were the first cases of compulsory drainage undertaken by the District in accordance with the act noted above.

In connection with the expenditures from the same appropriation for the fiscal year ending June 30, 1902, I would respectfully state that plans and specifications were prepared and bids received in 8 separate cases, embracing 19 premises, for the introduction of sewer and water accommodations. The expenditures in these cases nearly exhausted the full amount of the appropriation available for this work.

PROSECUTIONS.

Thirty-eight cases involving violations of the plumbing and gas-fitting laws and regulations were brought to the attention of the police court. Nineteen were for violation of the plumbing and gas-fitting laws, 3 for employing unregistered plumbers and gas fitters, 1 for excavating in the public space without a permit, and 15 for violation of the plumbing regulations. In 18 of these cases fines were imposed, 11 were not prosed for reason that the orders of the Commissioners to comply with the plumbing regulations had been complied with after information had been filed in the police court and 2 for want of evidence. 6 forfeited collaterals, and 1 case was dismissed.

PUBLIC TOILET STATIONS.

The question of providing public toilet stations for the city, to be used by both men and women, is one of considerable importance, and efforts should be made to secure permission from Congress to make use of such Government reservations as may be found necessary for that purpose.

As soon as the required permission has been granted for the location of such constructions, no time should be lost in securing an appropriation for the preparation of necessary plans and the construction of at least two such stations. The structures, in my opinion, should be of the underground type, hidden from view, and provision made for care takers to be in attendance at all times. Small fees should be charged for the use of the closets and also for the use of towels and soap in the lavatories, but no fees should be charged for the use of the urinals. By such an arrangement the toilet rooms would be maintained in a high condition of neatness, and from the fees collected it is believed they could be made nearly or quite self-sustaining.

EMPLOYEES PAID FROM GENERAL APPROPRIATIONS.

The services of a draftsman were necessary in this division, and one was employed continuously between July 1 and December 20, 1901, a period of one hundred and forty-four days, at \$4 per diem, \$406 being paid from appropriation for repairs to and changes in plumbing, public schools, 1902, and \$170 from appropriation for repairing and replacing heating apparatus, public schools, 1901 and 1902. A draftsman was also employed continuously between April 14 and June 30, 1902, a period of sixty-seven days, at \$3.50 per diem, \$63 being paid from appropriation for drainage of lots, health department, 1902, and \$171.50 from appropriation for repairs to and changes in plumbing, public schools, 1902.

Very respectfully,

O. L. INGALLS,
Inspector of Plumbing.

Maj. JOHN BIDDLE,
Corps of Engineers, U. S. Army,
Engineer Commissioner, District of Columbia.

(Through Capt. Chester Harding.)

REPORT OF THE PLUMBING BOARD.

WASHINGTON, August 25, 1902.

SIR: I have the honor to submit the following statement of the work of the plumbing board during the fourth year of its organization:

There were held during the year 23 sessions, most of which were devoted to the examination of candidates for master plumbers' licenses and the discussion of certain sections of the plumbing regulations with a view to determining the advisability of revision of the same.

The following changes in the personnel of the board were ordered by the Commissioners, District of Columbia: Mr. A. M. Lawson, whose term expired on June 30, 1901, was reappointed a member. Mr. T. V. Noonan was appointed a member to take effect on July 1, 1901, vice Mr. Thomas Humphrey, whose term expired on June 30, 1901. Mr. R. A. O'Brien was appointed a member on February 6, 1902, and subsequently elected as secretary of the board, vice Mr. Charles B. Ball, who resigned on January 26, 1902.

The total number of examinations conducted was 31. The number of original candidates examined was 15, of whom 5 passed. The number of those reexamined was 16, of whom 9 passed.

The examinations throughout the year were by the use of written questions and answers.

Jos. R. QUINTER, *President.*
RICHARD A. O'BRIEN, *Secretary.*

Maj. JOHN BIDDLE,
Corps of Engineers, U. S. Army,
Engineer Commissioner, District of Columbia.

(Through Capt. Chester Harding.)

REPORT OF THE INSPECTOR OF BUILDINGS.

WASHINGTON, August 12, 1902.

SIR: I have the honor to submit herewith the annual report covering the transactions of the building department for the fiscal year ending June 30, 1902, together with recommendations for the fiscal year ending June 30, 1904.

Statement of permits issued from June 30, 1901, to July 1, 1902.

	Number.	Value.		Number.	Value.
Brick dwellings	734	\$3,305,937	Workshops (brick)	6	15,200
Frame dwellings	159	299,856	Workshop (frame)	1	900
Brick repairs	980	1,265,185	Stables (brick)	28	59,750
Frame repairs	572	87,322	Stables (frame)	25	26,195
Apartment houses	54	1,232,000	Engines and boilers	49	112,356
Stores and dwellings	19	89,500	Studio (brick)	1	4,500
Stores (brick)	16	367,700	Ice house (frame)	1	4,000
Stores (frame)	3	3,800	Waiting room (frame)	1	250
Store and office	1	15,000	Blacksmith shops (brick)	4	2,312
Office buildings	13	461,400	Blacksmith shops (frame)	2	475
Churches (brick)	8	155,650	Sheds (brick)	11	10,660
Church (frame)	1	3,000	Sheds (frame)	513	23,272
Colleges or schools	2	155,000	Gasoline tanks	3	200
Assembly halls	2	60,000	Greenhouses	2	800
Warehouses	10	185,550	Minor repairs	3,380	30,420
The Rupert Home	1	40,000	Awnings	133	9,975
Orphan asylum	1	10,000	Fire escapes	23	9,350
Laundries	3	54,900	Elevators	56	98,825
Gymnasium	1	10,000	Total	6,821	8,310,240
Factory (brick)	1	6,000			
Factory (frame)	1	3,000			

Comparative statement for years 1901, 1902.

	New buildings.	Repairs.	Dwellings.	Apartments.
1902		1,111	893	54
1901		1,057	734	128
Increase	54	169	159	74

*Decrease.**Valuation of building operations:*

1902		\$8,310,240
1901		6,194,080

Increase 2,116,160

Number of permits issued, including buildings, repairs and minor repairs, awnings, engines and boilers, etc.:

1902	5,727
1901	4,595

Increase 1,132

Projections approved and not called for 30

Projections not approved 12

Inspections made, application approved, but not called for 116

Inspections made, applications not approved 91

The following summary will show the distribution of improvements in the different sections of the District and the value of the same:

	Buildings.	Repairs.
Northwest	\$3,498,620	\$833,535
County	2,494,626	149,441
Southeast	415,862	338,048
Northeast	231,498	25,703
Southwest	147,400	27,337
Total	6,787,406	1,374,264

Receipts of the office for the past year are as follows:

For building permits and repairs	\$3,916
For engines and boilers, ovens, gasoline tanks, elevators, electric motors, etc.	51
For projections beyond the building line	223
For awnings	133
For stands	3

Total 4,375

Received for year 1901 3,753

Increase 622

An examination of the foregoing summary affords a good example of the rapidly increasing business of this office, showing an increase in valuation of building operations of \$2,116,160 over previous year.

The building operations have increased steadily at the rate of over half a million dollars a year since 1894, when they were at their lowest ebb during the last twenty years, the valuation being at that time \$4,304,941. This steady increase in the volume of business has been transacted by this office with comparatively the same force employed in former times.

By reference to the number of permits issued during the past year it will be seen that an average of 19 permits are issued daily, and this branch of the work is transacted through the principal assistant inspector, who without assistance is required to pass upon the various subjects enumerated in the foregoing summary with such promptness and dispatch that it is impossible to give to each the consideration it deserves.

The builders of the city complain of the time consumed in obtaining permits, but, considering the number issued each day by one man, it will be seen that this delay is unavoidable with the present force. The principal assistant, or permit clerk, now issues one permit every twenty minutes, and when we stop to consider that within this time plans and specifications must be examined to ascertain whether they are in accordance with the regulations, and careful examination made of plats and locations, and comparison of projections beyond the building line with plans approved, and calculations made on strength of materials, it seems evident that this branch of the work of the office should be provided with an increased force, so that it may be handled, as it is in the other large cities, in a more systematic manner. In order to do this at least two assistants should be assigned to the permit desk in addition to the principal assistant; but as these can not be spared from the small force in the field, we are compelled to continue in the present very unsatisfactory manner until additional employees are authorized by Congress.

I submit herewith a report of the assistant inspectors in charge of field work or inspection of buildings in course of construction or repair within the District, and in connection with this report I beg to invite attention to the fact that during the building season the number of buildings under the care or supervision of each inspector amounted to 180 buildings in one month, which forcibly shows the inadequacy of the present force, for at this rate if each inspector made 14 visits a day to the buildings proper, not allowing any time for investigation of the numerous complaints and minor matters assigned them for report, it would be impossible to visit each of the buildings above mentioned more than twice in one month, and I find by reference to the summary at the beginning of my report that permits were issued for 3,176 buildings during the year, or a monthly average for the six inspectors of 50 buildings per month, thereby rendering it impossible on a basis of 12 visits a day to reach each building oftener than once every four and one-half days, not allowing for the greater amount of time consumed in minor matters not strictly in the nature of construction, such as downspouts, signs, awnings, unlawful occupancy of buildings, and investigation of complaints, which undoubtedly consume one-half the time of the inspectors, thereby rendering it impossible to properly inspect the number of buildings referred to oftener than once a week. From the above statement and in view of the territory covered by the District, I am forced to believe that our present corps of inspectors should be nearly doubled.

I beg to invite attention to reference in report of assistants to the present license law relating to contractors and builders, and heartily commend the suggestion that those who are licensed should be subjected to an examination by a competent board, under conditions similar to the plumbing board or the board of steam examiners. It seems hardly reasonable that the law appreciates the necessity of licensing and examining a man who is charged with the installation of plumbing fixtures in a house and the operation of a power plant, while the man who is morally responsible for the safety of the entire structure from foundation to roof, containing the plumbing fixtures and heating apparatus, is not required to furnish evidence of his ability to safely construct the building wherein the lives of hundreds may be jeopardized through his ignorance.

The report of assistant inspector in charge of elevators and fire escapes shows that it is impossible for one man to properly inspect the elevators of the District as often as required by law, if required also to locate all fire escapes and direct the installation of steam boilers and other motive power. The amount of his time encroached upon for assistance in repairing or remodeling the heating and ventilation of District buildings has resulted in a serious decrease in the number of inspections of elevators, but notwithstanding this extra tax on his time, he shows

that his inspections of a miscellaneous character were maintained at the rate of four each day.

I am thankful to report that one additional inspector of elevators assumed his duties on the first of the present fiscal year, which it is hoped will result in more frequent supervision of this responsible part of our work.

Several fatal accidents have resulted in the past year from the operation or management of elevators, not from mechanical defect, and I especially recommend the adoption of the suggestion that operators be examined as to their qualifications. The driver of an automobile is required to pass an examination, but the elevator operator seems to be selected according to the terms made with the owner, and in most of the accidents reported no regular or competent operator was present.

Reference is made to the defects of the present fire-escape law, which has been depended upon for requiring means of saving life in case of fire or panic, and has been applied in as practical a way as possible.

All buildings mentioned in the act and requiring licenses have been inspected annually, and pending the approval of application for license have been in technical compliance with the law, though never, in most cases, effectually provided with proper safety appliances. I would recommend that one assistant, either under this office or the fire department, be continuously employed to make frequent inspections, to require proper maintenance of appliances after they are installed according to law.

A special committee has been appointed by the Commissioners to report on this subject, and my experience leads me to believe that a joint resolution of Congress, repealing the present law and conferring authority on the Commissioners to make regulations governing the application of safety appliances, will be the only precise means of affording greater safety in case of fire.

In the report of the computer special reference is made to the frequency of accident in the use of derricks, scaffolds, and lack of precautions for safety of workmen on buildings. The present regulations are silent on this subject and the accidents of the past year, resulting fatally in several cases, seem to demand our care, but with our present force it would be a self-imposed obligation and responsibility entirely beyond our power to control. It therefore appears urgent to request that an inspector experienced in the use and construction of hoisting machinery and scaffolds be added to the office force.

The number and character of plans examined and passed upon by the computer shows a greater tax on his time than can reasonably be expected. In order to avoid delay in checking work submitted to him he has been required to give much more than legitimate time and has voluntarily devoted hours after office time to public work, besides frequent inspections of work in course of erection. I would therefore recommend one additional computer in order to transact the public business without overtaxing the employees.

One of the most trying and responsible duties imposed on the inspector of buildings is the removal of dangerous buildings or parts thereof. The danger from collapse of old, dilapidated, or damaged buildings seems to have been fully realized when act of Congress, approved March 1, 1899, was approved, and the law has been applied in many cases where the owner of the property can be subjected to service of required notice, but there are many cases now giving this office serious concern where old buildings are on the verge of collapse, but the law is ineffectual as long as the owner can not be served with a notice or arrested.

This law provides, upon the neglect, refusal, or absence of the owner or responsible parties, that the inspector of buildings shall enter upon the premises with such workmen and assistants as may be necessary, and cause the unsafe structure to be shored up, taken down, or secured, etc., and that the cost be assessed against the property and bear interest and be collected as taxes, etc. But the fundamental defect in the execution of the law is that it provides no funds from which to pay "workmen and assistants," and men who live by such work can not afford to wait several years until the amount is collected on assessment and paid to them.

I would therefore recommend that the small revenues of this office, amounting to about \$4,000 yearly, be intrusted to the auditor or otherwise made available as a means of executing the provisions of the law referring to dangerous buildings, and for temporary employment in emergencies of extra assistants necessary to enforce the building regulations in the interest of public safety.

During the past year the building regulations have been revised, promulgated, and distributed to the building trades and others interested. A few amendments have already been made which, however, do not change the intent of the regulations. But it is a continual complaint of builders and architects that frequent

changes made from time to time without previous notice keep them in a state of uncertainty, sometimes embarrassing them in the transaction of business with the owner and requiring incessant application to this office for information not obtainable in the printed copies of the regulations in their possession.

I would therefore most earnestly request that printed copies of changes be sent to this office by the secretary of the Board of Commissioners for distribution, and would most respectfully recommend that certain dates be designated for changes, if possible, such as July 1 and January 1 of each year, and that all changes be advertised and distributed as near these dates as possible.

In order to enforce the provision of section 33, relating to light and ventilation, I most earnestly repeat the recommendation of the late inspector of buildings, made in the last annual report, that a copy of subdivisions hereafter made be furnished the inspector of buildings, as is now done for the records of the assessor's office.

The men in the office have worked earnestly and conscientiously with realization of the responsibilities placed upon them without regard to time, and the clerical force give their services after the usual office hours in order to keep up the current work from day to day, and notwithstanding these efforts the work of the office is slightly behind, with little prospect of completion before the winter months, when the unusual amount of building is comparatively suspended. The clerical services required are of such a nature that I deem it but justice to recommend in the estimates for the fiscal year 1904 that their salaries be more appropriately adjusted, and commend them for your consideration.

The following buildings were completed during the present year:

Matthew G. Emery School, Lincoln avenue and Prospect street, Eckington.

Sayles J. Bowen School, Third and K streets SW.

Washington Heights School, California avenue.

Petworth School.

Benjamin G. Orr School, Twining City.

Kenilworth School.

S. C. Armstrong Manual Training School, P street, between First and Third streets NW.

William McKinley Manual Training School, Seventh street and Rhode Island avenue NW.

School building, North Capitol and P streets NW.

William Syphax School, Half street, between N and O streets SW.

Lovejoy School, Twelfth and D streets NE.

Tenth precinct, Whitney avenue.

Brookland engine house.

Receiving ward, Washington Asylum.

Four-room school building, Industrial Home School.

Stable in rear of No. 8 engine house.

Stable in rear Truck Company F.

New workhouse, rear wing, completed with exception of cells and ceiling. Heating to be installed under separate contract.

OTHER BUILDINGS REPORTED.

Plans will be completed in August, 1902, for the following buildings:

Eight-room school building, Twelfth and N streets NE., A. P. Clark, architect.

Eight-room school building, Pierce street, A. B. Mullett & Co., architects.

Eight-room school building, Ninth and D streets NE., Marsh & Peter, architects.

Eight-room school building, Twenty-seventh and K streets NW., Waddy B. Wood, architect.

The following 4-room school buildings were advertised, but proposals exceeded amount available, and revised plans have been completed by the inspector of buildings and specifications now being prepared:

At Good Hope, Brookland, Grant road, now Reno: Enlarging Cranch School, Twelfth and G streets SE., to 8-room building (1902). Special report will be made during the present month on the feasibility of enlarging this building, for the amount appropriated, which was built in 1872. Cost of additional site, \$1,840.80; appropriation, \$27,000.

For reconstructing Manual Training School, Seventh and G street SE., plans were prepared and proposals received which exceeded the amount appropriated, and it is found impracticable to reconstruct this building within the amount named, \$15,000.

For temporary substation in Tenleytown site was recently purchased, leaving a balance of about \$4,000 available for building. Sketches are being prepared for a frame building, to ascertain whether a suitable structure can be erected with this amount.

Engine house, Congress Heights, now under construction; to be completed within eight months.

Municipal almshouse: plans and specifications completed by G. O. Totten, jr., architect. The electrical work now being incorporated in specifications by the electrical engineer, District of Columbia.

For enlargement of girls' cottage, Industrial Home School, proposals were received which exceeded the former appropriation. New plans and specifications will be ready by about August 18, 1902.

During the year the appropriation for the card index for permit records was partially expended and the work completed.

I have the honor to append the reports of the computer, assistant inspectors, and the assistant inspector for elevators and fire escapes.

Very respectfully,

SNOWDEN ASHFORD,
Inspector of Buildings.

Maj. JOHN BIDDLE,

Corps of Engineers, U. S. Army.

Engineer Commissioner, District of Columbia.

(Through Capt. Chester Harding.)

WASHINGTON, D. C., August 12, 1902.

DEAR SIR: I have the honor to herewith submit my annual report for the fiscal year ending June 30, 1902:

Many serious foundation cases have received consideration, test loads being applied frequently to determine the actual bearing capacity of the soil, that having varied from 1,000 to 12,000 pounds per square foot of bearing surface.

The subject of the compressibility of soils has received most careful consideration, with a view to decide the extending subsurface and indeterminate lines of pressure exerted in soil under a given unit stress imposed on soil, and under varying conditions, such as the foundations of piers, walls, and the returns thereof.

Actual structural material, such as granite, stone, marble, terra cotta, brick, cast iron, wrought iron, structural steel, and wood, I have found in accord with the requirements of the building regulations; in some cases of manufactured material much improvement in quality and workmanship being noticeable.

All structural steel used and obtained directly from the rolling mills in this country has been of a quality fully equal to the standards required by the building regulations, the most careful scrutiny being necessary, however, to prevent the injudicious use of steel imported from abroad and not fully up to the standards required by this department, the means of detection being threefold. First, by comparison with actual standard American sections; second, by weight; third, by microscopical or chemical analysis, the foreign material having a greater per cent of carbon in it than that of American manufacture.

The utmost care has been used to detect the use of structural sections that have come from buildings destroyed by fire, not exceeding 50 per cent of the original value being allowed in any case.

Frequent cases have occurred where attempts have been made to use old iron of approximately similar structural section to the standard steel sections, computed and approved by this department. The material so found has been promptly condemned on its value allowed for as iron less 25 per cent on account of deterioration should such have occurred.

The assembly and shop work on structural steel columns, girders, trusses, etc., has been of a high standard, while the field work in some cases has been quite inferior, necessitating the condemnation of over 3,000 rivets during the year.

The amount of structural steel used has been in excess of any previous year, a total quantity approximating 5,600 tons having been used, the same question being applicable to cast iron, of which 4,000 tons have been used in conjunction with steel and for structural purposes.

This department has records of 31 different "fireproof" floor systems at this time, these being different combinations of steel, iron, brick, terra cotta, and concrete. Highly satisfactory tests as to the carrying capacity of some of these floors have been made, test loads having been applied largely in excess of the requirements of this department without fracture or permanent settlement.

To overcome any possibility of accident during the progress of these tests, special apparatus has been devised to record deflection.

Commendable speed has been made in the erection of our larger and more impor-

tant buildings. This, while not interfering with the stability of these structures, lessens the existence of an ever-present possibility of accident during their erection.

The continual alteration of old buildings for mercantile purposes, such as stores, warehouses, etc., and the possible overloading of floors, girders, walls, columns, and foundations in many cases has necessitated the utmost vigilance.

Much attention has been given to the installation of elevated water tanks for fire extinction and other purposes, these tanks having proved in many instances a continual danger from the liability of the supports to collapse; the most highly favored system being that of support from brick walls.

The question of the judicious handling of explosives and their action on buildings erected for their storage or otherwise has received the most careful and exhaustive study during the year. The more common causes of explosion are found to be from acetyline gas, boilers, cerberite, calcium carbide, coal oil, celluloid, dynamite, gas, gasoline, hot air, nitroglycerin, paraffin, and thermite. The few explosions from which this city has suffered has been from steam and gasoline and not from the lack of proper safeguards, the accidents in each case being from a lack of knowledge on the part of the operator.

The apparatus used for the hoisting of material has not been in all cases up to the high standard that its duty demands. Many fathoms of steel and hemp cable have been examined, portions condemned, and tests applied. In one ground test a hemp mooring cable snapped four times. Had this happened in an elevated position I fear the results could not have been otherwise than fatal.

I have to particularly thank Mr. A. M. Lawson, inspector of elevators, for his able judgment and hearty cooperation on all matters pertaining to cables and rigging connected with hoisting apparatus.

During the last year a system of recording accidents was inaugurated. This department keeping in touch with the larger cities of the Union and abroad, if the first data obtainable is insufficient, the city is immediately communicated with, with a view to obtaining clear, concise, and definite data relating to the case in question; we are thus informed as to the cause of accidents, fires, explosions, etc., elsewhere and can avoid largely similar trouble here.

Twenty-six strain sheets have been made to test structural drawings submitted and 236 sets of drawings, necessitating in cases as many as 25 and 30 sheets of computations have been passed upon and approved by me, while many sets of drawings have been approved without the need of computation during the year, and I regret to say some of the drawings submitted have been so vague, so lacking in detail, so utterly impractical, that I have been compelled to return them to their owners five and six times for revision, and in some instances entire redrawings, resulting in the loss of much time to this department.

Where the conditions are complex, where the element of danger exists, it can not be but utter ignorance of the necessities or culpable negligence that would allow anyone to submit the so-called drawings that no one but themselves can understand.

Thanking you for your courtesy and cooperation, I have the honor to remain, sir,
Your most obedient servant,

C. W. SOMMERSVILLE,
Computer, Building Department.

SNOWDEN ASHFORD, Esq.,
Inspector of Buildings, District of Columbia.

WASHINGTON, D. C., August 12, 1902.

DEAR SIR: We have the honor to submit the following report of our official duties as assistant inspectors of buildings during the fiscal year ending June 30, 1902:

Visits to new buildings.....	23,142
Visits to old buildings.....	7,221
Visits of miscellaneous character	3,419
Total, 1902.....	33,782
Total, 1901.....	22,035
Increase.....	11,747
Condemnations of buildings or parts thereof—	
1902.....	1,247
1901.....	579
Increase.....	668
Number of buildings renumbered.....	74

The addition of two assistants to your staff at the beginning of the fiscal year has enabled each man to devote more time to field work, and has resulted in a large increase in the total number of visits over any previous year.

We feel justified in stating that in consequence of the closer supervision we have been enabled to give to the work in our respective territories that there has been a decided improvement in the manner of construction and repair of buildings throughout the District. This improvement is especially marked in the class of buildings erected for speculative purposes.

The fiscal year just ended has been notable for the number of large buildings constructed, including mercantile, office buildings, and apartment houses, many of them of the most modern style of construction, involving many details not met with in ordinary buildings and requiring special supervision by this department.

Considerable time was devoted to the examination of old and defective buildings, the number condemned as dangerous, or dilapidated beyond repair, being largely in excess of the previous year.

The revised building regulations, which went into effect March 1, 1902, contained several apparently radical changes, the enforcement of which necessarily causes some slight friction and adds to the burden of work and responsibility placed upon your staff. In this connection it is gratifying to note that, as a rule, the most prominent and well-informed architects and builders have shown commendable readiness to adapt themselves to the new conditions and a willingness to conform to the new regulations.

There is another class of persons engaged in the building business as contractors and subcontractors whose lack of technical or practical knowledge of construction leads them to frequent violations of the regulations. In a business which so closely involves the safety of life and limb, as well as the protection of property owners, it is but reasonable to presume that those who are engaged in business as general building contractors should have the knowledge essential for the safe and proper conduct of such business, and subcontractors upon whose branches of the work the stability and safety of the entire superstructure is primarily dependent should be required to exhibit a sufficient knowledge of their business to insure the public against dangerous or faulty construction.

Inasmuch as the present law requires that contractors be licensed, we would respectfully suggest that before such license be granted applicants be required to pass an examination before a competent board to determine their qualifications as builders, and that they be required to register in this office.

We feel assured that the adoption of such a rule would meet with the hearty approval of reputable builders and owners throughout the District, and would be to the betterment of the city in a structural and architectural sense.

During the year we have, in emulation of the example set by our respected chief, endeavored by working early and late to secure such a close compliance with the regulations as would elevate the standard of construction to comport with the dignity of the nation's capital.

During the month of June the total number of building operations requiring inspection by the field force of this office, including new work, repairs, and work of a miscellaneous character, was 1,075, an average of about 180 to each man. When we consider the vast territory over which this work is scattered, it may be readily seen that it is a physical impossibility for the present small force to properly cover the field and to make such frequent and complete inspections as would in every case insure first-class work and a strict compliance with the building regulations.

Thanking you for your uniform kindness and consideration, we have the honor to remain,

Very respectfully,

R. M. EVANS.
CHAS. A. HARKNESS.
HENRY STOREY.
THOS. FRANCIS.
JOHN P. HEALY.
EDWARD KERN.

SNOWDEN ASHFORD, Esq.,
Inspector of Buildings, District of Columbia.

WASHINGTON, D. C., July 1, 1902.

DEAR SIR: I have the honor to report the performed duties of the inspector of elevators and fire escapes for the fiscal year ending June 30, 1902, as follows:

New elevators installed	56
Condemnations on elevators during installation	39
Inspections of elevators in operation	697
Condemnations on elevators in operation	88
Fire escapes erected (compulsory)	19
Condemnations on fire escapes during erection	23
Fire escapes erected	23
Steam boilers installed	49
Condemnations under fire-escape law	22
Steam engines installed	19
Gas engines installed	13
Gasoline engines installed	2
Gasoline tanks installed for mechanical purposes	3
Bake ovens erected	3
Buildings examined under fire-escape law	183
Examinations of elevators for the General Government	19
Miscellaneous condemnations	60
Number of official documents written	270
Number of visits made during the year	1,051

I would respectfully invite attention to the inadequacy of the fire-escape law now in force, and would recommend that this law be so amended as to require fire escapes on all buildings three stories or more in height, and not of fireproof construction, used as hotels, factories, manufactories, theaters, tenement houses, seminaries, colleges, academies, hospitals, asylums, halls or places of amusement, or buildings occupied as office buildings.

This law does not give the inspectors of fire escapes authority to order the removal of obstructions from fire escapes after they are in place and the buildings are occupied. There have been many cases where obstructions, such as ice boxes, refrigerators, garbage cans, ash boxes, etc., have been placed on the balconies in such a manner as to entirely block the way to the ladders.

If obstructing fire escapes was made a misdemeanor and punishable by a fine, it would in a great measure tend to facilitate the labors of the inspectors and save many unpleasant visits to the occupants of such buildings.

The act of Congress approved January 26, 1887, and March 2, 1895, requires that buildings occupied for purposes above enumerated, excepting office buildings, must be 50 feet or upward in height before fire escapes can be authoritatively required. Escapes can not now be required on buildings occupied as office buildings, no matter what the construction or height, unless there be a factory or manufactory conducted in some portion thereof.

There have been many buildings recently erected in the District of Columbia, of inflammable material, which have very meager means of exit, and are occupied as apartment houses and hotels, which are within a few inches less than the 50 feet prescribed in the act, and in several cases have a much larger number of occupants than other buildings of greater height and equipped with fire escapes; the former class of buildings in some instances have but one stairway each, constructed of inflammable material, as a means of exit for the persons who may be caught in the upper stories in times of a fire.

This law is also very indefinite as to whether the alarms or gongs shall be operated by hand or electricity, or whether they shall be operated singly or collectively, or whether or not operating stations should be conveniently located so that any occupant may set all the alarms in operation at one time in case of necessity, without having to run a great distance through hallways and down several flights of stairs before a station can be reached.

The notices provided for in the law now in force are not of a uniform character; some proprietors print the notices in very small type, placing them at the bottom of advertising cards and posting them in the sleeping rooms, thus technically complying with the law; while others merely say that "The fire escapes are located at the end of hallways," etc.

I would respectfully suggest the amendment of this law so that the proprietors of establishments where persons are temporarily housed will be required to make plans of each floor, showing the location of all fire escapes and other means of exit, and indicating the course to the same; and also have the hallways placarded with signs showing the direction to the nearest escape; and where escapes are

reached through rooms that may be locked, signs should be placed projecting into the hallways with the words, "To the fire escape," and a figured hand pointing the direction, and axes should be placed on either side of the doorway, if it is not possible to have the door removed from its hinges.

The law governing fire escapes requires "that hallways and stairways shall be properly lighted when occupied at night; and at the head and foot of each flight of stairs and at the intersection of all hallways with main corridors shall be kept during the night a red light;" and the regulation governing "theaters and other places of public assembly," section 176, requires that "red lights over exits in the auditorium and all lights in passages and stairways shall be independent of the lights in other parts of the house and so arranged that they can not be turned off from the stage or platform."

It will be seen by this law and regulation that a conflicting idea is created in the minds of the theater-going public who happen to live in a hotel or apartment house; the exit lights in theaters teaching them that red lights mark all exits, and in time of panic in their homes, are as liable to cause them to rush from a fire escape as to it. In many cases the hallways, corridors, and stairways are so located as not to be in touch with any fire escape or exit, and makes it difficult to understand the red-light mark.

I would recommend that a uniform system of marking exits be adopted for all places of public assembly and in hotels; the marking of exits in apartment houses is of but little assistance, because of the permanent character of the occupancy, and the rules of this office now in force is to touch each suite of rooms with escapes.

The regulations governing the construction, erection, and operation of elevators in the District of Columbia, promulgated March 1, 1902, are such as authorize this office to require a higher standard of efficiency in the construction and erection of elevators, and will insure to the elevator-traveling public a greater factor of safety than heretofore obtained.

For the better protection of property against fire, I have the honor to recommend, in conformity with section 198, building regulations, that no permit for the installation of any elevator, or permission for the alteration of any building for the installation of any elevator, be given by this office, unless the owner or owners of such buildings agree to erect a skylight over the elevator shaft above the roof, with a glass area of at least two-thirds that of the elevator shaft, and the shaft, as far as practicable, be of fire-resisting material; and, where passing through the roof from the ceiling of the last story, all openings to the air space under the roof shall be closed, so that in case of fire the shaft will be utilized as a flue for the relief of the building from smoke; also that an approved wire netting be required to be placed directly under the overhead supporting beams and sheaves, to prevent calamity in the elevator carriage in case of accident to the overhead work.

The regulations providing qualifications of persons operating elevators in the District have heretofore been and now are inoperative because of the lack of facilities for the enforcement of the same. This regulation should be in full force and effect and afford this office the direct control of those who operate elevators as intended by section 205, building regulations. The operators should be accountable to this office for neglect of duty, inefficiency, and for acts which might jeopardize life and limb.

I can not too strongly urge upon you the necessity of making inquiry into the qualifications of those who operate elevators in the District of Columbia. Section 205, of the building regulations, if enforced, would give this office control of the operator and would possibly have been the means of preventing at least one fatal accident during the year. This accident occurred in a class of institutions where all of the employees, official and otherwise, appear to presume that they have the knowledge and authority to operate elevators regardless of the directions of this office.

For a proper enforcement of section 205, it will be necessary for the creation of a board of examiners to inquire into the qualifications of those who follow this vocation.

This board should be given authority similar to other boards that examine into the competency of persons who have control of life and limb while in the discharge of a duty.

Upon proof of efficiency, the operators should be given a certificate to that effect, for which they should be required to pay a fee sufficiently large to bear the expense of conducting the said examinations, as in the case of similar boards acting under the authority of the honorable Commissioners, District of Columbia. This certificate should be revocable by the honorable Commissioners for cause.

Here permit me to say that it is a physical impossibility for your inspectors to make the required examinations while making the regular inspections of elevators, and besides it would hardly seem fair to the operators to have them examined by a one-man system, under the prevailing regulations.

Your attention is invited to the fact that during the fiscal year ending June 30, 1901, the number of inspections of elevators made was 923, while during the past fiscal year ending June 30, 1902, but 697 were made. This is owing to the great amount of time taken with the question of heating and ventilating the municipal buildings erected during the year, and investigating miscellaneous complaints.

Thanking you for the consideration and the support given me in the past, I have the honor to remain,

Very respectfully,

A. M. LAWSON,

Inspector of Elevators and Fire Escapes, District of Columbia.

Mr. SNOWDEN ASHFORD,

Inspector of Buildings, District of Columbia.

REPORT OF THE SUPERINTENDENT OF REPAIRS.

WASHINGTON, D. C., August 27, 1902.

SIR: I have the honor to submit herewith a report of the operations of the repair department for the fiscal year ending June 30, 1902.

Appropriations amounting to more than \$90,000 were expended for repairs to school buildings, engine houses, police stations, market houses, and police court.

While much of this work, such as steam fitting, kalsomining, etc., necessarily had to be let out by contract, the greater part was accomplished by means of day labor, and during the months of July, August, September, and October over 100 names were carried on the pay rolls. This large force was only necessary during the summer, when the schools were closed and the weather was fair, for a force averaging half this number was sufficient at other times.

The regular employees appointed by the Commissioners were one superintendent at \$5 per diem and one clerk at \$3, whose salaries were apportioned among the several appropriations enumerated hereafter. An additional clerk at \$2.50 per diem was appointed June 16 last to assist in the work during the summer months.

The only employees outside of the office who might be called regular were three foremen, one at \$4 and two at \$3.50 per diem, and one driver at \$2.50 per diem. The other employees were carpenters at \$3 per diem (one carpenter at \$3.20 per diem), painters at \$2.80 per diem, tinniers at \$2.80 per diem, bricklayers at \$4.50 per diem, plasterers at \$2.50 per diem, and laborers at \$1.50 per diem, who were engaged in such numbers and at such times as was necessary.

In order to show how the various appropriations were expended, I have set forth, so far as possible, the amounts allowed to each building, and, in a general way, described the character of the work completed.

Repairs and improvements to school buildings and grounds, 1902.

[Appropriation, \$50,000.]

Name of school.	Amount expended.	Name of school.	Amount expended.
First division:		Second division—Continued.	
Adams	\$344.14	Seaton	\$835.98
Berret	453.30	Twining	1,166.53
Dennison	264.28	Webster	128.19
Force	409.35	Total	3,782.22
Franklin	1,721.43		
Harrison	186.38	Third division:	
Hubbard	215.87	Brent	643.36
Johnson	538.85	Carbery	312.63
Phelps	167.21	Dent	22.55
Thomson	261.69	Hilton	775.44
Total	4,562.50	Lenox	528.48
Second division:		Maury	466.56
Abbott	170.45	Peabody	1,005.20
Eckington	714.05	Towers	408.20
Henry	301.47	Wallach	470.21
Morse	169.43	Total	4,632.63
Polk	296.12		

Repairs and improvements to school buildings and grounds, 1902—Continued.

Name of school.	Amount expended.	Name of school.	Amount expended.
Fourth division:		Eighth division:	
Amidon	\$140.19	Buchanan	\$554.63
Arthur	238.25	Cranch	111.76
Bradley	149.11	Tyler	231.33
Greenleaf	581.82	Benning	106.96
Jefferson	792.93	Congress Height	478.80
McCormick	152.98	Good Hope	109.44
Potomac	131.42	Van Buren	166.81
Smallwood	385.10	Van Buren Annex	194.58
Total	2,571.80	Benning Road	86.09
Fifth division:		Birney	607.55
Addison	290.75	Burrville	53.35
Conduit Road	71.00	Garfield	298.83
Corcoran	644.65	Hillsdale	292.95
Curtis	258.67	Total	3,293.08
Fillmore	561.72	Ninth division:	
Grant	349.52	Briggs	417.38
High Street	13.02	Garrison	190.37
Jackson	132.76	Magruder	143.27
Reservoir	319.33	Phillips	137.27
Threlkeld	90.17	Stevens	272.57
Toner	528.25	Sumner	166.52
Weightman	894.04	Wormley	508.05
Total	4,162.88	Total	1,835.86
Sixth division:		Tenth division:	
Blair	546.86	Banneker	73.93
Blake	535.69	Douglas	102.99
Gales	738.88	Garnet	96.44
Hayes	538.46	Cook	241.53
Madison	298.14	Jones	238.85
Pierce	278.01	Logan	357.11
Taylor	682.44	Patterson	120.80
Webb	52.23	Slater	195.72
Total	3,730.71	Total	1,447.37
Seventh division:		Eleventh division:	
Brightwood	\$126.96	Ambush	84.31
Brookland	255.98	Anthony Bowen	104.60
Chevy Chase	206.04	Bell	227.43
Hamilton	179.20	Giddings	838.42
Langdon	140.62	Lincoln	718.15
Monroe	179.56	Lovejoy	27.38
Takoma	69.90	Payne	140.83
Tenley	338.01	Randall	1,347.56
Woodburn	179.75	Total	3,488.68
Bruce	112.57	High schools:	
Bunker Hill Road	15.80	Central	1,000.00
Grant Road	51.75	Eastern	1,345.26
Ivy City	236.48	Western	922.00
Chain Bridge Road	20.50	Business	80.67
Mott	602.08	Colored	520.36
Wilson	96.77	Total	3,868.29
Total	2,811.97		

SUMMARY.

Total accounted for.	\$40,187.98
Horses and driver	760.68
Office salaries	1,170.00
Salary of superintendent of janitors	1,017.25
Hardware, lumber, etc., in stock	4,000.00
Miscellaneous and emergency work	2,864.09
Total	50,000.00

The requisition blanks which were sent to the various schools in April were filled out, enumerating the necessary repairs, and returned to this office in June. When estimates were made the requisitions showed over \$100,000 worth of repairs asked for, and consequently only the most urgent cases could be attended to.

To give an idea of the character of the repairs made I have enumerated the largest items under the heads of carpentering, painting, and tinning, viz:

Carpentering.—Teachers' retiring rooms were built at 6 schools, as follows: Blair, Blake, Brent, Giddings, Twining, and Hilton. New flooring, aggregating

more than 82,000 feet, was put in at 32 buildings, viz: Conduit Road, Brent, Twining, Seaton, Curtis, Fillmore, Force, Gales, Garrison, Henry, Hillsdale, Johnson, Lenox, Lincoln, Madison, Polk, Jefferson, Randall, Thomson, Towers, Wallach, Eastern High, etc. Storm sheds: Ten were erected at 7 schools, viz: Johnson, Johnson Annex, McCormick, Wormley, Dennison, Hayes, and Maury. Book closets—sixty were furnished for the following schools: Dent, Adams, Benning Road, Congress Heights, Douglas, Hamilton, Jefferson, Maury, Towers, Peabody, Van Buren Annex, Taylor, and Payne. Outhouses: Three were built at the Garfield and Orr.

Painting.—More painting was done on the schools last year than in any previous year. The entire exteriors of 5 schools were painted and penciled, viz: Twining, Birney Annex, Peabody, Randall, and Tenley. The exterior wood and iron work was painted at Eastern High, Western High, Addison, etc. The interior wood-work of 11 schools was grained or varnished, viz: Twining, Central High, Birney Annex, Ivy City, Blair, Corcoran, Wormley, Weightman, Johnson, Hayes, and Franklin. Iron and wood fences at the Central High and Wormley schools were painted. All of the new carpentering work was primed and painted. Blackboards at almost every school were repaired and reslated where necessary.

Tinning.—A large amount of tin work had to be renewed at a number of schools. New valleys or spouts were put up at the Birney Annex, Briggs, Brookland, Buchanan, Curtis, Cranch, Logan, Madison, Taylor, Van Buren Annex. Old roofs were replaced with new ones at the Franklin, Giddings, Grant, Jefferson, Logan, Madison, Taylor, Weightman, and Benning. The roofs of 27 school buildings were painted.

Of the work let out and completed under contract, the most important was:

Kalsomining.—Kalsomining was done at the Franklin, Eckington, Carbery, Maury, Wallach, Greenleaf, Fillmore, Grant, Gales, Colored High, Corcoran, Ivy City, Central High, Wormley, Toner, Sumner, Eastern High, Pierce. Total cost, \$2,661.

Whitewashing.—Benning, Benning Road, Burrville, Conduit Road, Fort Slocum, Garfield, Goodhope, Grant Road, Langdon, and Potomac. Total cost, \$129.

Furnace castings.—Furnace castings were renewed at the various buildings. Total cost, \$2,399.15.

Gas engines.—New gas engines were installed at the Hilton and Eckington schools. Total cost, \$780.

NECESSARY REPAIRS TO AND CHANGES IN PLUMBING IN EXISTING SCHOOLS, 1902.

[Appropriation, \$25,000.]

The main part of this appropriation is expended under the supervision of the inspector of plumbing, but this department receives all requests for repairs and immediately orders the same made. During the year about 150 orders were given for repairs which cost more than \$1,000.

REPAIRS TO ENGINE HOUSES, 1902.

[Appropriation, \$5,000.]

Engine No. 1	\$75.75	Engine No. 14	\$65.35
Engine No. 2	428.50	Engine No. 15	177.55
Engine No. 4	350.80	Truck A	466.88
Engine No. 5	124.25	Truck B	195.70
Engine No. 6	136.50	Truck C	322.04
Engine No. 7	271.15	Truck D	231.13
Engine No. 8	115.33	Truck E	52.86
Engine No. 9	195.64	Truck F	46.09
Engine No. 10	115.54	Chemical No. 1	222.90
Engine No. 11	164.13	Chemical No. 2	466.56
Engine No. 12	156.00	Chemical No. 3	58.90

SUMMARY.

Total accounted for		\$4,439.55
Office salaries		117.00
Stock—hardware, lumber, etc.		200.00
Miscellaneous and emergency work		243.45
Total		5,000.00

The calls for repairs made on this appropriation by far exceeded the amount available. This necessitated the omission of a great deal of important work, and it was with difficulty that a deficiency was avoided. No extraordinary repairs were made, but only the ordinary wear and tear was taken care of, as follows:

Carpentering.—New stalls were built or old ones repaired at the following houses: No. 2, No. 5, No. 6, No. 7, No. 8, No. 9, No. 11, Truck A, Truck C, Truck D. New lockers were provided at 4 houses: No. 7, No. 8, Truck B and Truck D.

Painting.—The doors and woodwork were painted at many of the houses, as also were the dormitory and engine-room walls.

Timing.—The roofs of a great number of the houses were in a bad condition, and new roofs were found necessary at the following places: No. 2, No. 5, No. 7, Truck C, Chemical No. 1, Chemical No. 3.

REPAIRS TO POLICE STATIONS, 1902.

[Appropriation, \$5,000.]

Station No. 1	\$127.23	Station No. 7	\$124.70
Station No. 2	272.67	Station No. 8	417.64
Station No. 3	54.30	Station No. 9	608.87
Station No. 4	719.40	Station No. 10	225.66
Station No. 5	516.25	Substation	69.88
Station No. 6	453.20	Police headquarters	82.70

SUMMARY.

Total accounted for	\$4,160.50
Office salaries	117.00
Stock—hardware, lumber, etc	175.00
Miscellaneous and emergency work	547.50
<hr/>	
Total	5,000.00

The police stations are all in a good state of repair, the appropriation being about sufficient for the number of houses in service to date. The greatest amount was expended in painting and plumbing during the past year.

Besides the painting of interior and exterior woodwork at the various stations the brick fronts of the following stations were painted and penciled: No. 3 and No. 4.

New plumbing was installed at station houses No. 3, No. 4, No. 5, and No. 9.

REPAIRS TO MARKETS, 1902.

[Appropriation, \$2,250.]

Eastern	\$955.23
Western	1,040.14
Georgetown	99.40
<hr/>	
Total accounted for	2,094.77
Office salaries	78.00
Emergency work	77.23
<hr/>	
Total	2,250.00

The repairs on the Eastern Market were more extensive last year than in any previous year. The interior and exterior of the building were painted, and roof and valleys, which were in a poor condition, were renewed. The Western Market as usual received a large share of the appropriation. Besides the minor repairs which were made at this market a large shed was provided in the rear for the protection of horses and eight large stands were renewed inside.

REPAIRING AND RENEWING HEATING AND VENTILATING APPARATUS, SCHOOLS, 1902.

[Appropriation, \$30,000.]

SUMMARY.

New boilers for eight school buildings	\$14,984.45
Two new boiler houses	9,380.92
Steam-fitting repairs	3,123.00
New boiler tubes, Western High	263.00
Office salaries	351.00
Miscellaneous and emergency work	1,897.63
 Total	 30,000.00

This appropriation was made available on the urgent deficiency bill in order to replace boilers which had been condemned at 8 schools. Contracts were made and new boilers installed at the Peabody, Henry, Central High, Garnet, Lincoln, Curtis, Force, and Jefferson. New boiler houses were provided at the Jefferson and Curtis buildings, but in other cases the new boilers were placed in position of old ones. The item for steam fitting represents the repair work which is found necessary each year to keep the heating apparatus in first-class condition.

REPAIRS TO POLICE COURT. 1902.

[Appropriation, \$800.]

This old building is in a very poor condition, and the appropriation is only about sufficient to meet the heavy wear and tear to which it is subjected.

During the past year the exterior wood and stone work was painted. Much of the interior woodwork was painted or varnished and two walls in each court room were kalsomined. Several of the offices were moved and rearranged, necessitating considerable carpentering work.

Besides the above-mentioned repairs many minor items might be mentioned, such as tinning, plumbing, carpentering, and the installation of electric fans and bells.

MISCELLANEOUS.

In addition to the repairs and improvements made under the above-mentioned appropriations, this department completed a large amount of work on other municipal buildings. Included among these were—

Almshouse.—One new steam boiler and connections were furnished.

Smallpox hospital.—The entire interior and exterior of the buildings were painted. The tin roofs were repaired, renewed, and painted where necessary. New porches were provided and considerable shelving was put up. New granolithic pavements leading to and around the building were laid.

Industrial Home School.—New granolithic floors and pavements were laid. Entire exteriors of both buildings were painted. New wood floors were laid in training shop.

Property yard, District of Columbia.—One new wagon shed was constructed.

Disinfecting plant.—A new concrete floor was laid and a large amount of wood-work was repaired.

District of Columbia building.—Alterations were made in the offices of the secretary, fire department, police department, superintendent of property, health department, assessor's office, etc.

Detention camp, smallpox service.—New fence was constructed around the premises.

House of detention, police department.—New water-closet was provided and the plumbing repaired; eight closets for clothes were constructed; several horse stalls were repaired, etc.

Reviewing stand, police and firemen's parade.—A stand was constructed in front of the White House for the police and firemen's parade.

Western High School.—The new fence surrounding the school was painted.

Respectfully,

G. B. COLEMAN,
Superintendent of Repairs.

REPORT OF THE INSPECTOR OF ASPHALT AND CEMENTS.

WASHINGTON, September 30, 1902.

MAJOR: I have the honor to submit the report of the work done in this office during the fiscal year ending June 30, 1902.

The work of testing may be summarized as follows:

TESTING.

Hydraulic cements:		Sands	13
Natural, 5 brands, samples	3,357	Gravels	3
Portland, 10 brands, samples	5,534	Gasolines	5
Asphalts:		Bricks	12
Trinidad, 5 cargoes, samples	35	Waters	11
Trinidad, refined	5	Oils	8
Cuban, crude	3	Coals	28
Asphaltic cements, samples	316	Bronzes	10
Asphaltic oils	5	Rubber packing	210
Residuum oils	28	Miscellaneous experiments, etc.	210
Surface mixtures	154		
Miscellaneous asphalts	12	Total	9,761

HYDRAULIC CEMENTS.

The number of barrels inspected and the average results of tests of each brand of cement will be found in the following tables:

Natural cements.—The 3,357 samples represent 33,592 barrels, of which 3,210 were rejected.*Natural cements.*

Brand.	Number of barrels,	Number of samples,	Per cent residue, 100-mesh sieve,	Initial set (minutes),	Per cent water used.		Temperature of air and water,	Tensile strength.		
					Neat cement.	2 parts sand.		Neat cement.	7 days.	7 days, 2 parts sand.
Cumberland hydraulic	6,893	689	16	19	30	14	75	158	202	179
Cumberland and Potomac	8,337	833	14.6	18	31.8	14	75	175	264	171
Cumberland Valley	4,503	450	18	17	30.6	14	134	232	232	135
Potomac	2,569	256	16	26	29.7	14	107	107	203	136
Round Top	11,290	1,129	16	15	31	14	74	128	200	120

PORTLAND CEMENTS.

The 5,534 samples of Portland cement represent 54,951 barrels, of which 2,641 were rejected.

Portland cements.

Brand.	Number of barrels,	Number of samples,	Per cent residue, 100-mesh sieve,	Initial set,	Per cent water used.		Temperature of air and water,	Tensile strength.		
					Neat cement.	3 parts sand.		Neat cement.	7 days.	7 days, 3 parts sand.
Alpha	2,50	16	2.11	18.5	9	74	487	876	826	345
Atlas	2,576	257	6	2.00	18	8	617	871	824	324
Krause ^a	19	6	3.00	19.5	9.5	76	496	850	819	319
Lehigh	19,200	1,920	7	2.25	18.7	8.9	74.4	388	790	270
Nazareth	4,900	3.7	2.00	19.3	9	73.4	346	688	688	265
Northampton	3,200	320	3.3	1.35	19.1	9.1	72.1	278	578	294
Old Dominion	19,700	1,970	6.6	2.00	18.8	9	71.9	467	555	322
Reading ^a	10	5	1.50	19	10	70	522	522	522	245
Sovereign	125	12	4	2.00	18	9	78	542	732	162
Vulcanite	5,200	520	7	2.18	19	9	400	935	935	348

^a Test samples.

INSPECTION OF CEMENT.

As there appears to be some misunderstanding about the rejection of the cement by this department, judging from a letter in a recent engineering paper, it may be well to explain here that of the cement rejected a very small per cent is really of inferior quality.

Of the rejected cement during the past year 52 per cent was rejected for being too quick setting, 4 per cent for being too slow setting, 33 per cent for being too coarse, and 12 per cent for being too low in tensile strength. It would be safe to say that over 80 per cent of the cement rejected was good, sound cement and perfectly suitable and desirable for some classes of work, the rejection having been because the cement did not meet the requirements of our specifications, which are drawn up to obtain a cement that will meet all requirements of the various branches of the engineer department. Such specifications are made necessary by our limited storage capacity, preventing the handling of more than one grade of cement.

It is seen from the above that by far the greatest number of rejected cements is due to quick setting. In nearly all the cases of quick-setting Portland cement the cause is owing either to an insufficient quantity or poor quality of the sulphate of lime used. It is remarkable how many times this error occurs when one considers how simple a matter it is to prevent, and it is not much to the credit of some of our manufacturers, who not only let it occur once, but time and time again.

In the inspection of all cement used in the public work for the District of Columbia a 10 per cent sample is taken and each sample tested separately. The failure of one sample to pass the specifications is considered sufficient cause for the rejection of the entire lot.

The methods employed in the inspection and delivery of cement are as follows: The cement used is of two classes—that which the District contracts for and furnishes for work to be done by the District, or for contract work that specifies that the District shall furnish the cement, and that cement which is to be furnished by a contractor on work which he is performing for the District. The first class alluded to is received from the cars at a District warehouse, where it is sampled under the direction of the superintendent of property. These samples are submitted to this department for inspection, and if the cement passes the tests the superintendent of property is notified, and his storekeeper issues that cement from the District warehouse on orders. If the cement is rejected the superintendent of property notifies the cement contractor to that effect, who hauls it out of the warehouse.

The other class of cement is usually stored in contractors' warehouses, and the inspection and issuing come directly and entirely under this department. When the contractor wishes to use cement he notifies this department, and an inspector is sent to his warehouse, where he samples the cement and submits it for testing. If the cement is accepted the warehouse inspector is notified, and is then allowed to issue this lot of cement to the contractor as he desires it. With each load of cement sent out by the warehouse inspector is a ticket stating the number of barrels and the lot number of the cement, which is handed to the inspector on the work for which the cement is intended. A record of the number of barrels of each lot and the location to which they are sent is kept by the warehouse inspector. It is a strict order of this department that the inspector see all cement loaded on the wagon before he shall issue a ticket for the load. If it is thought that the cement that has been tested and accepted for the District work has been removed or tampered with during the absence of the inspector from the warehouse, that lot of cement is rejected, and will only be accepted on a resampling and testing.

ASPHALT PAVEMENTS.

The contract for paving with sheet asphalt during the past fiscal year was awarded to the Warner Quinlan Asphalt Company, of Syracuse, N. Y. This company proposed to do the paving with Trinidad land asphalt mined from the deposit on the Dundonald property, situated in the village of La Brea, Trinidad. The contract was awarded after a careful investigation of not only the character of the asphalt, but of the refinery of the company situated at Warner, N. J., one of their paving plants in operation in New York City, and of their pavements laid in Utica and Syracuse, N. Y.

After this investigation it was decided that this asphalt as refined by the Warner Quinlan Asphalt Company was of such a quality as to meet the requirements of the specifications—that is, that when this asphalt was fluxed with a desirable

residuum the resulting cement would not be inferior to a cement made of the best quality Trinidad asphalt and petroleum residuum.

After the awarding of the contract the Brennan Construction Company, of this city, made arrangements with the Warner Quinlan Asphalt Company by which they became the agent for this company and executed the work of the contract.

By request of the contractor the first three streets were paved with the Trinidad land asphalt fluxed with petroleum residuum alone, to demonstrate that good pavement could be laid with this material. In all the other work the Trinidad land asphalt was fluxed with California maltha and the petroleum residuum.

The question as to the relative merits of the Trinidad lake and land asphalt has been a much-discussed subject and the bone of contention in many a bitter fight.

In the early days of the asphalt industry it became apparent to some of the strongest asphalt interests that while it was possible to control the output of asphalt from the asphalt lake at Trinidad by the uniting of a few interests, it would be very difficult to control the output of the land deposits of asphalt, as they were so numerous and owned by so many different parties. It is very evident that this in a large measure was the primary cause and has been responsible for the war waged on land asphalt in the past. It is only justice, however, to state that there is considerable evidence that apparently points to lake asphalt being superior to that obtained from the land deposits when considered from a purely theoretical standpoint, and it is no discredit to those who were led to believe in the superiority of the former when the limited experience and knowledge of what is required of asphalts in pavement building is taken into account.

There is strong evidence to show that these two asphalts are of common origin, and that the land asphalt is the result either of an overflow of asphalt from the lake or that it is being forced up through crevices in the earth from the same source that is supplying the lake; or it may be that these deposits are a result of the combination of the two above conditions. But whatever the origin of these two asphalts, the lake is, as a rule, appreciably the softer, as this deposit, being so extensive in bulk, has lost less of the lighter oils and has been less subjected to molecular changes than has the asphalt from the land deposits. It is upon this the advocates of the lake asphalt base their claim of superiority over the land, and it is useless to mention here the numerous tests that have been devised to show that the lake asphalt is softer and contains more light oils than the land asphalt. Granted that the lake asphalt contains more light oils and is softer than the land, and for this reason requires the addition of less flux to soften it into a paving cement, does this make the lake superior to the land asphalt? From the following laboratory examination comparing the two asphalts it is seen that they are very similar in all respects. Where one excels in one property the other excels in another, so there is but little choice.

		Refined lake asphalt.	Refined land asphalt.
Chemical examination:			
Bitumen soluble in carbon disulphide.....	per cent.	55.74	54.20
Organic matter not bitumen	do.	7.88	7.83
Mineral matter	do.	36.38	38.07
On further examination the bitumens were found to be composed of:			
Bitumen soluble in naphtha (60 to 80 b. p.), petrolene.....	do.	62.90	59.40
Bitumen insoluble in naphtha (60 to 80 b. p.), asphaltene	do.	37.10	40.60
Physical examination:			
Parts residuum oil required to flux 100 parts of refined asphalt into cement		17	22

These two refined asphalts were fluxed into paving cements having the same consistency at 77° F. by the addition of the same residuum to each. The lake asphalt required 17 parts of residuum to 100 parts of refined asphalt and the land asphalt required 22 parts of residuum to the 100 parts of refined asphalt in making the cements.

These asphalt cements gave on examination—

		Lake asphalt cement.	Land asphalt cement.
Bitumen soluble in carbon disulphide.	per cent.	62.4	62.6
Penetration at 77° F. (100 gms. 5 seconds, No. 2 needle)	do.	40	39
Heat test (samples heated in open tins in air bath):			
Loss on heating at 325° F. for 24 hours	do.	1.53	1.06
Penetration before heating		40	39
Penetration after heating		19	24
Susceptibility to changes in temperature:			
Penetration at 32° F. (200 gms. 1 minute, No. 2 needle)		12	12
Penetration at 77° F. (100 gms. 5 seconds, No. 2 needle)		40	39
Penetration at 100° F. (50 gms. 5 seconds, No. 2 needle)		90	75
Penetration at 115° F. (50 gms. 5 seconds, No. 2 needle)		185	171
Ductility, length in inches to which asphalt cement could be drawn before breaking		18	11
Action of water on cements, appearance of cements after 48 hours immersion in water		(a)	(b)

a Badly attacked.

b Slightly attacked.

In reviewing the above results we see that the land refined asphalt is harder than the lake refined as it requires more residuum to soften the former into a paving cement of 40 penetration than it does the latter, but even though this be true it can hardly be looked upon as an objection after reviewing the results of the examination of the two cements. From this examination it is seen that the lake asphalt cement is inferior to the land asphalt cement in that it is slightly more altered by heat, it is more susceptible to changes in temperature, and is more readily acted upon by water. The land asphalt cement is inferior to the lake asphalt cement in being less ductile at 77° F. After a careful examination into the facts I believe that little or no foundation can be found for the claim that lake asphalt is superior in quality for paving purposes to land asphalt.

The reasons given for the superiority of the lake asphalt is that it contains a larger quantity of light oils, which are superior to any oil that can be added to the asphalt, and that the bitumen is more cementitious. On examination, the asphalt cement is found to be slightly more cementitious at ordinary temperatures between 50° F. and 90° F., but in practical use asphalt pavements are subject to much lower and much higher temperatures than these, and as the lake cement is more susceptible to changes in temperature it is very doubtful whether the lake is superior to the land cement at the extremes in temperature.

It is claimed, and I believe rightly so, that, as a rule, the pavements laid with land asphalt have been inferior to those laid with lake asphalt. This does not of necessity prove that the latter is superior to the former, but is easily accounted for in the fact that in the early days of the asphalt industry all the most experienced paving companies, controlling practically all the men with any experience at all, were induced by various concessions to use lake asphalt, so that the land asphalt pavements were laid by incompetent and inexperienced men who naturally produced inferior work.

A practical demonstration that tends to prove that the importance placed on the presence of these light oils in asphalt is much overestimated, is that one of the best pavements in the country was made with Gilsonite, which is considerably harder than land asphalt, softened into a paving cement by the addition of an oxidized petroleum residuum. The cement used in this pavement is entirely lacking in any natural light oils and is less cementitious at ordinary temperatures than is even a cement made of land asphalt. With this before us it is even more reasonable to claim that the absence of these light oils renders the land asphalt superior to the lake, because the asphalt would be less affected by heat, and having aged longer in its natural state will be less liable to undergo further changes when incorporated into a pavement. It is also seen that the land is superior to the lake in that it is less acted on by water. This is a very important point, as it is evident that the action of water on lake asphalt is responsible for more failures than from any other cause.

CUBAN ASPHALT.

During the past year the Brennan Construction Company used in about 5,000 square yards of sheet-asphalt pavement a cement made of Cuban asphalt fluxed with California maltha. This asphalt is mined at Bejucal, about 20 miles from

Habana, Cuba. The flux used to soften this asphalt into a paving cement was manufactured by the Sunset Refining Company, of Los Angeles, Cal.

The results of the laboratory examination of this asphalt and flux used to soften it into a paving cement will be found below.

The examination of the crude Bejucal asphalt is as follows:

	Per cent.
Water and light oils volatile at 225° F.	3.61
After drying at 225° F. for 18 hours the sample analyzed:	
Bitumen soluble in carbon disulphide	71.64
Organic matter insoluble in carbon disulphide	4.20
Mineral matter (clay, sand, and some limestone)	24.20

A further examination of the bitumen soluble in carbon disulphide showed it to be composed of—

	Per cent.
Bitumen soluble in naphtha (76° B., 60 to 80 b. p.), petroline	50
Bitumen insoluble in naphtha (76° B., 60 to 80 b. p.), asphaltine	50

This asphalt is too hard in its natural state to be suitable to use as a paving cement, and has to be fluxed to the desirable consistency by the addition of a suitable oil.

The flux used was a refined asphaltic oil from the Sunset Oil Refinery, of Los Angeles, Cal.

On examination it gave:

Specific gravity, actual	0.9950
Specific gravity (degrees Baumé)	10.7
Flash point (° F.)	350
Bitumen soluble in carbon disulphide	per cent.
Bitumen soluble in naphtha (76° B., 60 to 80 b. p.) petroline	99.80
Bitumen insoluble in naphtha (76° B., 60 to 80 b. p.) asphaltene	do 92.90
Loss on heating for twenty-four hours at 300° F.	7.10
Loss on heating for twenty-four hours at 400° F.	.81
Loss on heating for twenty-four hours at 77° F., after twenty-four hours, 400° F., fluid.	6.38

The results of the examination of a cement made by fluxing 100 parts of the crude Cuban asphalt with 65 parts of the Sunset Refining Company's asphaltic oil flux will be found in comparison with a Bermudez asphalt cement made of the best quality refined Bermudez asphalt fluxed with 13 parts of Constable Hook residuum.

On examination these cements gave:

	Cuban.	Bermudez.
Penetration at 77° F.	53	51
Bitumen soluble in carbon disulphide	per cent.	84.60 95.80
Heat test:		
Loss on heating for 18 hours at 325° F.	do 5.20	3.20
Penetration at 77° F., after above heating	do 18	21
Hardened by heating	do 290	240
Test for susceptibility to changes in temperature:		
Penetration at 52° F. (200 gms. 1 minute, No. 2 needle)	17.5	15
Penetration at 77° F. (100 gms. 5 seconds, No. 2 needle)	53	51
Penetration at 100° F. (50 gms. 5 seconds, No. 2 needle)	115	113
Penetration at 115° F. (50 gms. 5 seconds, No. 2 needle)	218	222
Ductility. Length in inches to which asphalt cement could be drawn at 77° F.	24	22

Neither of the above cements show the slightest signs of the action of water after two weeks' immersion in distilled water.

It is seen from the above results that the two cements compared are practically alike, and as the Bermudez cement is one of the best that has ever been used for paving, I am led to believe from this that a cement can be manufactured by a proper admixture of the Cuban asphalt and flux that will be equal to the best of paving cements.

Crude Cuban asphalt.—Three samples of crude Cuban asphalt have been examined during the past year, and gave on solution in carbon disulphide 71.64, 72.22, and 72.78 per cent. Judging from the amount of flux used in oiling each still, it showed a remarkable uniformity in quality.

Crude Trinidad asphalt.—The Barber Asphalt Paving Company, as formerly, has refined all the Trinidad lake asphalt for the use of the Cranford Paving Company.

During the past year 36 samples have been received, representing five cargoes. The asphalt received has been as uniform as usual, the maximum, minimum, and average being respectively 55.84, 53.69, and 54.56 per cent bitumen soluble in carbon disulphide.

As was mentioned in my last report, the great objection to Trinidad asphalt is the rapidity with which it disintegrates under the action of water, owing to the presence of soluble salts left after refining off the water. As the removal of these salts is very desirable, I visited the plant of the Maryland Paving Company, in Baltimore, in the past spring, where they had a plant in operation for washing the asphalt. The method employed consisted in first grinding the crude asphalt in a disintegrator and then agitating in water, thus washing out considerable of the salts, after which the asphalt was refined in the usual manner.

The plant consisted of a Denmead disintegrator, the capacity of which was 10 tons per hour, and a large circular vat with revolving paddles, in which the ground crude asphalt was washed. The process consisted in first grinding the crude asphalt, after which it was conveyed to the large vat, where it was washed in water, being agitated by revolving paddles. After being agitated a half an hour the paddles were stopped and the asphalt allowed to subside. The water was then drawn off and fresh water added and the agitation continued as before. After these two washings the crude asphalt was run off into the stills and refined. It is claimed, and I also believe from experiments, that the asphalt is much easier refined after it has been washed. Samples of the refined asphalt were taken, and on testing in comparison with the ordinary refined asphalt were found to be greatly improved, being much less rapidly attacked by water. The plant for washing the asphalt appeared so practical and at the same time so inexpensive and the asphalt was so much improved that it was thought advisable to insert the following clause in the specifications for sheet asphalt and asphalt-block pavement: "The asphalt cement must be either naturally or through artificial treatment of such character as to be unaffected by the action of water when tested as follows: The asphalt cement shall be tested by coating on a piece of glass and immersing this coated glass in distilled water at a temperature between 70° F. and 90° F. The surface of the asphalt cement must remain bright and show no corrosion or discoloration after immersion for a period of seven days."

Refined asphalt.—There were two cargoes of refined land asphalt received by the Brennan Construction Company during the year, from which 4 samples were taken and gave, on analysis, the following per cent bitumen: 54.1, 51.8, 53.8, 50.7. Judging from the quantity of residuum oil used in each still to flux this asphalt into a paving cement, it showed a remarkable uniformity in consistency. In the first three streets where residuum oil was alone used to flux the refined asphalt into the paving cement the proportion of oil used varied from 25 parts to 26½ parts to 100 parts of refined asphalt, the penetration of the cement varied from 33 to 41 at 77° F. This same uniformity was noticeable during the entire year.

The above demonstrates that although this asphalt is not quite as uniform as that from the Trinidad lake, it is far more so than Bermudez asphalt.

Petroleum residuum.—Under this heading I include all fluxes used for the softening of asphalts into paving cements. Of the total 33 fluxes examined, 15 have been for the Barber Asphalt Paving Company, 13 for the Brennan Construction Company, 2 for the Cranford Paving Company, and 3 specials. The Barber Asphalt Paving Company used in the first part of the year a flux manufactured at Constable Hook, N. J., from Eastern petroleum oil. Toward the end of the season they instituted the use of a residuum from Texas oil manufactured at their refinery at Constable Hook, N. J. This new flux being more asphaltic in character is an advantage over the residuums from Eastern petroleum oils, as it produces a cement that is more ductile and adhesive.

Of the 13 samples of residuum submitted by the Brennan Construction Company, 9 were manufactured from Eastern petroleum oil, 3 from asphaltic oil of California, and 1 from Beaumont, Tex., oil. The latter oil is a new flux recently gotten out by the Standard Oil Company. It is manufactured at their refinery at Bayonne, N. J., and is designated as either Bayonne residuum or as No. 55 flux. This oil makes an excellent flux, in fact the best that I have examined made from anything excepting the true asphaltic oils or malthas. The two samples of oil submitted by the Cranford Paving Company were from the Canfield Oil Company, being an Eastern petroleum residuum.

Asphalt cements.—The results of the tests made on asphalt cements submitted by the various paving companies during the past year will be found in the following table:

Table showing penetration of asphalt topping cement and binder during fiscal year ending June 30, 1902.

Number of samples	Topping.			Binder.				
	Penetration.			Number of samples	Penetration.			
	Highest.	Lowest.	Average.		Highest.	Lowest.		
Barber Asphalt Paving Co.	12	50	39	41.8	4	81	70	77.25
Cranford Paving Co.	97	59	40	48.4	51	115	55.5	90
Warner-Quinlan Asphalt Co.	96	66	25	44.2	32	35	49.5	70.6
Washington Asphalt Block and Tile Co.	2	18	13	15.5	—	—	—	—

Asphalt surface mixtures.—During the year 154 samples were submitted by the three paving companies. The following table shows the maximum, minimum, and average per cent bitumen soluble in carbon disulphid found in the surface mixtures, and also the average mesh composition of the sands used in the paving mixtures. Included in this sand is all dust that was added to the mixture along with the mineral ingredients of the asphalt.

	Barber Asphalt Paving Co.	Cranford Paving Co.	Warner-Quinlan Paving Co.
Number of samples	11	87	56
Average per cent bitumen	9.6	—	—
Lowest per cent bitumen	9.1	8.24	8.4
Highest per cent bitumen	10.1	10.8	11.7
Sand: Per cent retained on sieves having—			
20 mesh per linear inch	8	2.6	5
40 mesh per linear inch	21	16.6	26.1
60 mesh per linear inch	26	31.4	30
80 mesh per linear inch	15	19.6	13
100 mesh per linear inch	11	14.7	9.5
Passing 100 mesh per linear inch	19	14.8	16.4

I would recommend for the consideration of the Commissioners of the District of Columbia the advisability of increasing the scope of this department so as to include the testing of all materials bought under contract by the District government. Such examinations would without doubt result in a great saving to the District, as it would prevent the furnishing of poor quality and in many cases unsuitable materials. The materials that can be suggested offhand as being desirable to examine are, coal, coke, bricks of all kinds, lubricating oils, linseed oil, burning oils, and paints. Examinations of such materials could be made by this department without any addition to the present force and with but a slight increase in expense for suitable apparatus. Samples of nearly all these materials have been sent into this department during the past year, and the time consumed in the examination of the same has been sufficient to examine many times the number, owing to the inadequate apparatus and limited space, making it necessary to set up and take down the apparatus for each lot examined. I would recommend that the several branches of the engineer department and all departments of the District government that buy materials on contract submit such materials to this office for examination, to determine if they meet the requirements of specifications.

Before closing my report I would respectfully call your attention to the inadequate accommodations and equipment of this department. The accommodations are not only much too limited as to size, but the presence of a laboratory in such a building is a great source of danger from fire, and I am under constant anxiety lest an accident would cause not only the destruction of this department, but that of others who have property such as maps and records that would be impossible to replace. It is to be hoped that more extensive accommodation can be furnished this department, as we are greatly in need of additional apparatus for all branches

of the work so as to keep the laboratory abreast with the modern requirements in testing of engineering materials.

We are at present very poorly equipped even for the testing of cement, the cement-testing machine being of insufficient capacity and worn-out. The following is the special apparatus of which this department is greatly in need and for which I would request an additional appropriation: 2,000-pound cement-testing machine, one impact machine for testing asphalt blocks, etc., an apparatus for determining the ductility and strength of asphalt cements at various temperatures, and several other minor appliances. These could all be purchased at a sum not exceeding \$2,000. For the general contingent expenses I would request an appropriation of \$1,000.

The employees detailed to this department are four in number—one assistant receiving \$5 per day, paid out of appropriation for sewers; one inspector at asphalt paving yard, receiving at present \$3.50 per day; two skilled laborers, one performing some clerical work, at \$1.75 per day each. The inspector at the paving yard and one of the skilled laborers are paid from the appropriation for improvements and repair, the other skilled laborer is paid from an appropriation of the water department.

During the season when cement is being used an inspector is employed to keep track of the cement in the various contractors' warehouses, at a salary of \$2 per pay, paid from the appropriation for improvements and repair. During the past year two asphalt companies' yards, situated in different sections of the city, have been in operation, which necessitated the employing of an additional inspector for one of these yards. The inspector was detailed from the surface department and carried on their rolls.

Respectfully,

A. W. Dow,
Inspector of Asphalts and Cements.

Maj. JOHN BIDDLE,

Corps of Engineers, U. S. Army,

Engineer Commissioner, District of Columbia.

REPORT OF THE ASSISTANT ENGINEER IN CHARGE OF STREET EXTENSIONS.

WASHINGTON, August 7, 1902.

MAJOR: I have the honor to submit the following report of the work on street extensions for the fiscal year ending June 30, 1902.

All special condemnations of streets as authorized by Congress have been completed during the past year, and a table is here included showing awards, etc., relating to the same. Maps, calculations, and various data have been furnished by this office in aid of these condemnation proceedings.

Reports and estimates have been made on the following condemnation bills introduced during this session of Congress: Albemarle street, Le Droit avenue, Elm street, Wilson and Sixth streets, Wright's road (or Eighth street), Quincy street, Bacon street, Erie street, Euclid place, School street, Kalorama avenue, Seventeenth street, Frankfort street (Langdon), Wisconsin avenue, New York avenue, R, Twenty-eighth, and M streets, Thirteenth and Fourteenth streets, Twenty-fourth street NE., Vermont avenue, California avenue, and Wyoming avenue.

A number of maps relating to new streets have been prepared for record with the surveyor's office, and the general maps relating to subdivisions and suburban tracts have been added to and brought to date. Many of these have been lithographed, and it is desired that others shall be copied in the near future.

A system of street naming has been adopted by the Commissioners for all streets outside of the city, and a map and table of the same was prepared for record. It was found, however, that no authority existed for a change of street names in the first section, and as it is desired to have uniformity in names over the entire District final action has been deferred. It is recommended that Con-

gress be requested to give the authority for this matter, and also to rename streets in the city where several names are given to a single minor street.

Street.	Act.	Date of award.	Date of confirmation.	Damages.	Benefits.	Court file.
Sixteenth street extended.	No. 155, approved Mar. 3, 1890.	1901, May 27	1902, Apr. 19	\$529,952.29	\$108,834.00	580
Pennsylvania avenue.	No. 225, approved Mar. 3, 1890.	July 24	Sept. 20	1,969.00	1,019.00	551
Fifth street	do	Oct. 4	Nov. 19	5,233.58	5,233.58	554
Eckington place	do	1902, May 5	June 16	5,968.20	2,023.76	533
Adams Mill road	Sundry civil, Mar. 3, 1890; District of Columbia, Mar. 3, 1890; sundry civil, June 6, 1900.	June 27	July 15	6,082.88	.....	589

Very respectfully,

W. P. RICHARDS,
Assistant Engineer.

Maj. JOHN BIDDLE,
Engineer Commissioner, District of Columbia.

WASHINGTON, September 29, 1902.

SIR: I have the honor to submit the following report of the operations in Rock Creek Park during the fiscal year ended June 30, 1902.

The work of the year may be said briefly to have consisted in the building of two masonry bridges and in the grading and macadamizing of 3 miles of park roads.

At the beginning of the year there existed a drive along the banks of Rock Creek from the Klingle road to the northern limit of the park, about 5 miles in length, having about 7,000 linear feet of macadam and the rest of a dirt or gravel surface. Another drive, known as the Ridge road, had been opened from the mouth of Broad Branch northward to the Military road, a distance of 1½ miles, but was not in a finished state. A completed macadam drive connected the Daniels road with the Military road and Broad Branch, and the Military road had been macadamized from Rock Creek to the Daniels road. Thus the park had isolated pieces of macadam roads which the work of the past year has connected, so that a continuous drive can be had over macadam roadway along the creek from Klingle road to the Military road, and thence, in way of return, by the Military and Ridge roads. The road along the creek is now known as Beach driveway.

A new entrance has been opened into the park by the way of Blagden avenue, considerable grading having been required for a distance of 800 feet in order to make this entrance possible. A temporary bridge has been constructed over Rock Creek in the line of this avenue so as to connect the same with Beach driveway and the Broad Branch road.

All macadam on Beach driveway was placed during the summer and fall, and additional grading was done between Klingle road and Pierce Mill during the spring in order to widen the old road from its old width of 15 feet to its present width of 30 feet. A part of this widening was through rock for a distance of about 200 feet, and this added considerably to the cost of the work. That part of Beach driveway between Pierce Mill and the site of the Argyle Mill was improved under the superintendent of county roads, as it was a part of an old highway.

The Ridge road was widened throughout its length, and a portion of it was macadamized with rock blasted out of the line of the road, the remainder being covered up with trap rock in the usual manner.

Two new arches have been built, both of them on the line of Beach driveway, one at the mouth of Broad Branch and the other at the site of the old Argyle dam. This last, known as the Boulder Bridge, has a facing of field stones gathered from places outside the park. The stones are placed so as to show no tool marks and very little of the cement at joints, and the bridge harmonizes well with its surroundings. It was designed under the direction of Capt. Lansing H. Beach, formerly Engineer Commissioner of the District.

A general statement of expenses incurred during the past year is as follows:

Amount of appropriation	\$37,500.00
Contract on Bowlder Bridge, Talty & Allen	\$14,890.00
Cost of girders, Bowlder Bridge	987.00
Royalty on Bowlder Bridge	1,190.77
Inspection, Bowlder Bridge	568.00
Cost of trap rock for macadamizing	3,454.95
Contract for macadam, Lyons Brothers	1,817.90
Paid for broken flint	360.00
Paid for sprinkler	340.00
Paid for 2-horse mower	38.00
Paid for hire of teams	5,000.00
Paid for hire of labor, dynamite, purchase of tools, etc	8,853.38

Some damage was done by two floods during the year, the dam at Pierce Mill being washed out on one occasion and the dirt road above the Military road being washed in a number of places. These floods exceeded any high waters during the last seven years, but were 6 or 7 feet lower than the greatest floods at Rock Creek.

PAST IMPROVEMENT OF THE PARK.

In addition to the above outline of work for the past year, I have the honor to submit the following history of operations in the park from the beginning of same until the present time.

The first work toward improving Rock Creek Park was begun in 1897 under the direction of Capt. Lansing H. Beach, Corps of Engineers, U. S. Army, who was then assistant to the Engineer Commissioner and secretary to the board of control of the park. There was no appropriation at that time and work was carried on with the help of the chain gang, and consisted merely in making more passable the existing roads or in opening up old roads which had been partly abandoned.

The first appropriation made for work in the park was one making available for this purpose the unexpended balance of the appropriation made for the purchase of land for the park; this balance amounted to about \$24,330.

Work was begun in May, 1899, by opening up a road along the creek between Blagden Mill and the Military road. An appropriation was made during the following year amounting to \$15,000, and for the fiscal year 1902 there was appropriated \$37,500. There was also appropriated during 1899 the sum of \$6,000 to be expended within the park limits for a roadway leading from Brightwood avenue across the north end of the park. Up to the 1st of November, 1902, or during all the time that Captain Beach was in charge, there had been expended out of park funds for the construction and repair of roads about \$55,000, and there has resulted from this expenditure 4 miles of completed macadam roadways and 3 miles of dirt roads. One and one-half miles of roadway within the park limits have been macadamized out of county road funds, the roadways so improved being direct highways through the park and connecting on either side of the park with some of the principal county thoroughfares.

HISTORY OF CONSTRUCTION OF ROADS.

Beginning at the southern boundary of the park and running northward along the banks of the creek work has progressed in the following manner:

The road along the east bank of Rock Creek between Klinge road and the Pierce Mill road, 3,500 feet in length, was first made passable over its entire length by grading done during the summer of 1899. Additional grading was done in 1900, and the road was finally macadamized in the summer of 1901 and widened during the spring of 1902. A part of this road, for a distance of 1,000 feet below Pierce Mill, was an old highway, but considerable grading was done in order to make it of easy grade. The part below Piney Branch was first caused to be opened by the building of a sewer in 1896, a dirt road being constructed over the top of the sewer.

The road on the west side of Rock Creek between Pierce Mill and Blagden Mill was graded and macadamized during the fall of 1901 out of funds for the repair of county roads.

The road along the bank of the creek from Blagden Mill to the Military road was opened and macadamized from May to December, 1899. Additional macadam

was put on the road during the following year. The construction of this road required some heavy grading, there being cuts of over 30 feet and a number of fills averaging 10 feet. A great deal of blasting was necessary at two or three points, and enough rock was obtained out of the line of the road to macadamize three-fourths of its length. Great care was taken to do as little damage to the topography as possible outside of the limits of the road, and considerable dirt was hauled from points at the two ends of the roads in order to prevent any defacement of the banks on either side. The cost of this road has been about \$15,000, and was paid out of the first appropriation made for the care and improvement of the park.

The roadway along the creek from Military road to the north crossing of Rock Creek was graded during the spring and summer of 1900, and about \$6,000 has been spent on its construction. It is merely a dirt road, no part of it being macadamized. A roadway and a temporary bridge were built under a special appropriation of \$6,000, made February 21, 1899, most of the work being done under contract. No macadamizing has been done on this roadway, but considerable material has been purchased for such work.

The roadway leading from the south end of the Daniels road to the Military road at Broad Branch was first opened in 1898 by operations of the chain gang. This road was a portion of the Military road opened during the war, but had been abandoned a number of years and had some very steep grades throughout most of its length. Additional grading was done out of Rock Creek Park funds during 1899, and the road was macadamized during the fall of that year.

The roadway leading to the hill just north of the mouth of Broad Branch, sometimes called the Ridge road, having a length of 7,000 feet, was laid out during 1899, and some little grading was done on it during that year by the chain gang. The grading on this road was completed during 1900 out of park funds, and it was macadamized during the year 1901 out of the park appropriation of \$37,500.

CONSTRUCTION OF CULVERTS AND BRIDGES.

There has been constructed in the park during the last four years 4 permanent arches, 1 steel viaduct, 6 culverts, and 5 temporary bridges.

A culvert over the mouth of Piney Branch was first constructed in 1899 at a cost of \$600, but was washed out during the next year, and the present culvert was built in 1900 at a cost of \$3,160, which was paid out of a special appropriation made for repairing damages done by the freshet of June, 1900.

The iron viaduct over Piney Branch was built during the year 1899 at a cost of \$10,567, which was paid from the appropriation for construction and repair of bridges in the District of Columbia.

The bridge over Rock Creek, in the line of Blagden avenue, is a temporary structure built by the chain gang during the summer and fall of 1901.

The culvert over the mouth of Broad Branch was built during the summer and fall of 1901 at a cost of \$4,300, paid out of the appropriation for construction and repair of bridges in the District of Columbia.

The culvert over Broad Branch, on the line of Military road, was built during 1898 by the chain gang and by labor paid out of the appropriation for construction and repair of bridges. The actual money expended was \$433.18.

The culvert on Beach driveway (Rock Creek drive), just north of the Military road, was built during August and September, 1899, at a cost of \$531.19, and was paid out of the appropriation for construction and repair of bridges in the District of Columbia.

The stone arch at the site of the old Blagden dam was built between October, 1901, and May, 1902, at a cost of \$17,653.77, which was paid out of the appropriation for the care and improvement of the park for the fiscal year ending June 30, 1902.

There are four temporary bridges in the park.

The construction of bridges and culverts is necessarily a large item, but all temporary bridges should be as quickly as possible replaced by bridges and arches of permanent character.

OPERATIONS OF THE CHAIN GANG.

The first work done by the chain gang was during the year 1897, and consisted of grading and shaping roads in the park then used as county roads. During the year 1898 the chain gang assisted in building the culvert over Broad Branch on the Military road and did grading on that road for a distance of $1\frac{1}{2}$ miles, reducing the very steep grades of 10 per cent to a maximum of 7 per cent.

During 1899 the chain gang was employed in opening up what is known as the Ridge road, leading up the hill from the mouth of Broad Branch. The trees and underbrush along this line were cleared out and considerable grading was done by the gang, the finished grading being done by day labor.

During the year 1900 the gang was employed in removing the old bridge abutments on the line of the Pierce Mill or Linnean Hill road and in grading down the embankment at that point.

During the year 1901 the chain gang built the temporary bridge over the line of Blagden avenue and did some grading on Blagden avenue and on the Linnean Hill road.

In addition to the above work the gang has been employed during the spring and autumn of each year in cleaning gutters, repairing embankments, cutting out underbrush, and mowing the grass and weeds. Their operations have done very much toward making certain localities more accessible and attractive.

PLAN OF IMPROVEMENTS.

No comprehensive plan has, of course, been undertaken for the improvement of the park. The present lines of the roads follow the most natural topographical conditions, and are so located and graded that they will naturally weave in with any plan that may be finally devised for the more complete improvement of the park.

Beach driveway was so well indicated by marks of nature that very little choice was allowed in its location.

Another road, which is equally guided by topographical conditions, is the one following the ridge between Daniels road and the mouth of Broad Branch. A number of drives can yet be laid out without risk of error in following the small valleys leading to the east or west of Rock Creek in the northern portion of the park. One idea has always been held in view through all these improvements, namely, to disturb natural conditions as little as possible and to leave the park in a wild and rugged state, avoiding any attempt at finish or polish which usually follows the improvement of parks located near the center of a city.

All improvements in the park, from their inception until November 1, 1901, were under the close scrutiny and care of Captain Beach, and the appropriations for the work were obtained through his persistent efforts.

EXPENDITURES.

The expenditures during the fiscal year ending June 30, 1900, were as follows, all chargeable to the balance left from the purchase of land which was made available for the purpose and amounted to about \$24,330, viz:

Appropriation		\$24,330
Expenditures:		
Grading and macadamizing Beach driveway (Rock Creek drive) from Argyle or Blagden Mill to Military road		15,000
Grading and macadamizing Military road between Broad Branch and Daniels road		4,000
Grading and macadamizing the changed location of Linnean Hill road just north of Piney Branch		1,000
Grading and graveling Rock Creek road between Klingle road and Pierce Mill		2,500
Arch over Piney Branch		600
Grading along creek north of Military road		1,000
		24,100

The expenditures during the fiscal year ending June 30, 1901, were as follows:

Appropriation		\$15,000
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Expenditures:		
Grading along Rock Creek from Military road to northern part of park		5,000
Grading the Ridge road from the mouth of Broad Branch to Military road		5,000
Grading and widening road along the creek between Pierce Mill and Klingle road		3,000
Widening road between Broad Branch and Argyle Mill		2,000
		15,000

WORK RECOMMENDED FOR THE FISCAL YEAR 1904.

The most important work to be considered for the coming year, in my opinion, is the completion of the macadam drive along the banks of Rock Creek to the northern limit of the park.

Two permanent bridges are necessary on the line of Beach driveway, one at Rock Creek ford and another at the northern end of the park, at an estimated cost for both structures of \$25,000.

I believe, too, that Ross road should be completed as soon as possible, as it is an exceedingly picturesque side-hill drive leading from Military road to the mouth of Broad Branch.

The present $5\frac{1}{2}$ miles of macadam roadway will in the near future need repair and will have to be made wider at a number of points. A stated sum should be appropriated each year for the proper care and maintenance of these roads. The road from Blagden Mill to the Military road has been in use for two years, and although still in good condition is beginning to show signs of wear. The road also needs protection from flood by a wall at certain points where the bank is high and very near the water's edge.

An additional sprinkler is very much needed as the experience of the past year shows that one sprinkler can not take care of the present roads.

A new feature of improvement that now suggests itself is the construction of footpaths through the park leading somewhere near and in the general direction of Beach driveway, but on the opposite side of the creek. If a start can be made during the coming year it is suggested that the work be commenced at Kingle ford and be carried northward as far as any appropriation would allow, and it is believed that at least \$10,000 should be allowed for this work, which would also include the building of places of shelter along the line of the path.

There are a number of fine springs in the park which need paths leading to them and likewise some shelter above them to prevent leaves and other substances from falling into them.

The Pierce Mill dam, which was a very pretty feature of the creek, was washed away during the high water of December, 1891, leaving the creek bed and banks near the mill in a rather unsightly condition. A new and more permanent dam would cost about \$2,500, and by use of boulders could be made more attractive than the old one.

The entrance to Blagden avenue is now made over a temporary bridge which is liable to be destroyed by any high water, and it is suggested that a more permanent connection be made with the avenue by extending it along the creek to the Pierce Mill Bridge.

The following is the estimated cost of work recommended for the coming year, 1903-4:

Estimate.

Completing the grading and macadamizing of Beach driveway, 11,000 feet in length:	
Grading 10,000 cubic yards, at 25 cents	\$2,500
Macadamizing 5,000 cubic yards, at \$3	15,000
Gutters, 3,700 square yards, at 50 cents	1,850
Two arches across Rock Creek on the line of Beach driveway	
Completing Ross road, 6,000 feet long	25,000
Completing roadway leading from north end of Daniels road to Beach driveway	10,000
Purchase of sprinkler	5,000
Cost of running two sprinklers 150 days, at \$7	350
Paving creek bottom at Milk House ford	1,050
To restore Pierce Mill dam	500
Blagden avenue extension	2,500
Protecting Rock Creek banks	5,000
Footpaths and shelters	5,000
Care and repair of present macadam roads	5,000
	89,750
Add 10 per cent for engineering expenses, etc.	8,975
Total	98,725

It is recommended that some steps be taken looking to the location and mapping of particularly attractive points in the park, so that any plan that might be adopted in the near future would have regard to exceptional places, like the magnificent bunch of oaks and chestnuts now standing just west of the middle

service reservoir. The maps of the United States Coast and Geodetic Survey have been used with excellent results as an aid in past work, but they are on too small a scale for a very detailed study and a larger set of working maps should be acquired as soon as possible.

Very respectfully,

W. P. RICHARDS,
Assistant Engineer.

Maj. JOHN BIDDLE,
Corps of Engineers, U. S. Army,
Engineer Commissioner, D. C.

REPORT OF THE SUPERINTENDENT OF PROPERTY.

WASHINGTON, August 21, 1902.

SIR: I have the honor to forward herewith detailed statement in quadruplicate as of July 1, 1902, showing expenditures of the property division of the engineer department for the fiscal year ending June 30, 1902.

1. Construction material purchased	\$268,084.60
2. Miscellaneous purchases	93,616.50
3. List of employees other than those on per annum rolls, and amounts paid to each	20,795.30
Total	382,496.40

Deliveries and payments under contract for furnishing paving and concrete sand, screened pebbles, curbing, Portland and natural cement are still in course of execution, and therefore this report is incomplete as to those items.

Very respectfully,

R. D. SIMMS,
Superintendent of Property.

Maj. JOHN BIDDLE,
Corps of Engineers, U. S. Army,
Engineer Commissioner, D. C.

STATEMENT NO. 1.—*Showing amount of construction material purchased for issue from the District of Columbia property yards during the year ending June 30, 1902.*

	Quantities.	Values.
Terra-cotta sewer pipe, branches, bends, and reducers:		
24-inch sewer pipe	feet 3,021	\$2,518.13
21-inch sewer pipe	do 4,305	2,771.70
18-inch sewer pipe	do 7,500	3,255.45
15-inch sewer pipe	do 7,437	2,401.04
12-inch sewer pipe	do 19,142	4,226.17
10-inch sewer pipe	do 8,582	1,616.76
8-inch sewer pipe	do 3,305	454.96
6-inch sewer pipe	do 12,604	933.07
8-inch to 6-inch reducers	number 30	15.00
6-inch sewer bends	do 150	37.50
Vitrified invert sewer bricks	do 700,861	11,388.99
Repressed vitrified paving blocks	do 593,947	12,449.13
Repressed vitrified paving half blocks	do 25,492	331.40
Sidewalk paving bricks	do 311,438	3,659.40
Asphalt paving blocks	do 810,383	47,255.93
Broken stone	cubic yards 31,436	30,808.03
Red sewer bricks	number 590,319	5,992.82
Paving and concrete sand	cubic yards 4,388	1,843.94
Screened sand	do 638	312.87
Screened pebbles	do 1,820	1,256.03
Curbing	linear feet 68,408	47,420.43
Bluestone basin tops	number 34	506.60
Portland cement	barrels 28,915	41,216.82
Natural cement	do 17,816	11,225.85
Castings		4,087.15
Water boxes	number 942	516.36
Siphons, 6-inch	do 6	126.00
Hauling broken stone		9,455.54
Storage on cement		839.53
Freight on broken stone		16,998.01
Hauling		2,161.71
Freight		2.28
Total		268,084.60

STATEMENT NO. 2.—*Showing miscellaneous purchases made during the year ending June 30, 1902.*

Awnings purchased and repaired	\$11.90	Lumber	\$16,083.02
Badges, and repairs to	8.25	Lime	75.96
Bags	8.50	Oils, illuminating, engine, etc	1,488.36
Blank forms, printing and binding	4,070.73	Paints, glass, and oils	4,084.35
Blocks, pulley	9.98	Photographic supplies	27.50
Bicycle repairs	13.00	Pitch	233.50
Blue prints	147.25	Plows, and repairs to	230.58
Books, made to order	549.21	Plumbers' supplies	9,546.71
Boots, rubber	141.50	Saddlery	901.37
Castings	1,945.88	Quartz	21.34
Drugs	142.50	Rails, iron	977.56
Chemists' supplies	65.80	Stationery	2,230.82
Clocks	7.00	Surveyors' instruments, and re- pairs to	688.20
Dry goods	106.79	Stone, rubble, etc	1,329.82
Engine, machinery, etc	559.40	Subscriptions, magazines, etc	16.00
Electrical supplies	1,122.08	Tickets, street-car	227.50
Fertilizer	53.60	Tinware	2,628.99
Fuel	10,709.98	Trees, maple	80.00
Furnace	100.00	Tools, and repairs to	570.04
Furniture	1,192.91	Typewriters and repairs	327.50
Forage	8,441.63	Valves and casings	5,742.49
Groceries	73.41	Wagons, carts, buggies, and repairs	5,314.00
Hose	1,485.71	Water meters	433.50
Hardware	1,799.48	Total	93,616.50
Horses	515.00		
Hydrants	884.00		
Ice	48.90		

STATEMENT NO. 3.—*Showing list of employees other than those on the permanent rolls, amount paid to each, and the various appropriations from which such payments were made.*

Rate.	Assessment and permit work.		Improvement and repairs.	Cleaning and re- pairing sewers, and basins.	Main and pipe sewers.	Subur- ban sewers.	Arizona avenue sewer.
	Streets.	Sewers.					
R. D. Simms	{ \$5.00	\$65.00		\$297.30		\$84.00	
	6.00						
C. T. Shoemaker	{ 4.50	54.00		216.54		63.00	
	5.00						
J. A. McDannel	4.00	52.00		198.21		56.00	
H. M. Spencer	4.00	28.00		198.20		56.00	
W. H. Edgar	{ 3.50	50.00		198.21		56.00	
	4.00						
H. B. van der Las	{ 2.50	35.50		148.65		42.00	
	3.00						
Chas. Hume	3.00	24.00		132.82		42.00	
Wm. Morris	{ 1.75			92.42	\$19.25	28.00	
	2.00						
Geo. Arrington	1.75	21.00					
A. T. Batts	1.75	21.00		83.21	19.25	26.23	\$3.50 \$0.17
Wm. Donaldson	4.00	52.00		198.21	104.00	61.71	11.87 .55
H. M. Dickinson	3.25	32.50		160.55	84.50	50.14	9.64 39.32
W. H. Voss	3.00	39.00		148.65	78.00	42.00	
W. J. W. Grey	3.00	39.00		144.15	78.00	46.28	8.00 39.42
G. T. Hammer	2.00	24.00			51.56	16.83	61.61
J. K. Hammer	2.00					2.85	29.45 26.77
J. Wm. McConchie	2.50			136.51	27.50	38.57	7.42 32.85
	3.25						
Blacksmiths	{ 2.00	61.38			135.33	92.99	223.68 69.83
	2.50						
Wheelwright and painter	2.50					2.75	5.71 .27
Labor	{ 1.75	173.25		68.37	484.50	125.30	570.78 163.92
	1.50						
Total		771.63		2,422.00	1,081.89	932.65	932.65 373.10

STATEMENT No. 3.—*Showing list of employees, etc.—Continued.*

	Rate.	Low area trunk sewer.	Bound- ary sewer.	Paving road- ways under permit system.	Conting- ent expenses engineer stables.	Exten- sion of high- service system.	Pump- ing ex- penses and pipe distribu- tion.	Pur- chase and repair pumps.
R. D. Simms.....	\$5.00					\$144.00	\$78.00	-----
	6.00							
C. T. Shoemaker.....	4.50					114.50	60.00	-----
J. A. McDannel.....	5.00					96.00	52.00	-----
H. M. Spencer.....	4.00					44.00	52.00	-----
W. H. Edgar.....	3.50					96.00	52.00	-----
	4.00							
H. B. van der Las.....	2.50					72.00	-----	
Chas. Hume.....	3.00					70.50	36.00	-----
Wm. Morris.....	1.75					46.00	15.00	-----
	2.00							
Geo. Arrington.....	1.75							
A. T. Batts.....	1.75	\$2.57				40.25	29.75	-----
Wm. Donaldson.....	4.00	8.48	\$52.00			44.00	-----	
H. M. Dickinson.....	3.25	6.89				78.00	-----	
W. H. Voss.....	3.00					72.00	-----	
W. J. W. Grey.....	3.00	6.36	30.00			30.00	-----	
G. T. Hammer.....	2.00				\$26.44			
J. K. Hammer.....	2.00	4.23			\$26.44	52.00	26.00	-----
J. Wm. McConchie.....	2.50	5.29			32.76	57.50	-----	
	3.25							
Blacksmiths.....	2.00	58.38	117.00		73.07	74.75	32.50	74.75
	2.50							\$42.25
Wheelwright and and painter.....	2.50		52.49	65.00				-----
	2.50							
Labor.....	1.75		115.63	193.50	158.55	204.00	68.50	106.00
	1.50							7.75
Total.....		260.32	457.50	290.82	304.75	1,157.75	581.50	50.00

	Rate.	General expenses electri- cal de- part- ment.	Parking commis- sion.	East side inter- cepting sewer.		Repairs to streets, avenues, and alleys.	Side- walks and curbs.	
				Between Twenty- second and A NE. and Twelfth street SE.	From Twelfth street SE. to pumping station, foot of •New Jersey avenue.			
R. D. Simms.....	\$5.00						\$345.53	\$18.12
	6.00							
C. T. Shoemaker.....	4.50						167.40	15.10
J. A. McDannel.....	5.00						243.03	12.08
H. M. Spencer.....	4.00				\$52.00		267.03	12.08
W. H. Edgar.....	3.50						243.02	12.08
	4.00							
H. B. van der Las.....	2.50					\$3.00	143.27	9.06
Chas. Hume.....	3.00						127.66	8.36
Wm. Morris.....	1.75						90.29	6.04
	2.00							
Geo. Arrington.....	1.75							
A. T. Batts.....	1.75						83.57	5.28
Wm. Donaldson.....	4.00						191.02	12.08
H. M. Dickinson.....	3.25						164.95	9.06
W. H. Voss.....	3.00						143.26	9.06
W. J. W. Grey.....	3.00						143.27	9.05
G. T. Hammer.....	2.00						61.57	-----
J. K. Hammer.....	2.00	\$28.00			4.48	\$20.77	26.00	-----
J. Wm. McConchie.....	2.50						119.90	11.65
	3.25							
Blacksmiths.....	2.00		\$45.50	11.83	54.92	116.92	161.63	-----
	2.50							
Wheelwright and painter.....	2.50					76.57	-----	
	2.50							
Labor.....	1.75		65.63	3.75	34.82	148.15	149.58	503.60
	1.50							15.90
Total.....		93.63	49.25	103.13	223.84	466.32	3,200.00	165.00

STATEMENT No. 3.—*Showing list of employees, etc.—Continued.*

	Rate.	Construction of county roads.	Repairs to county roads.	Bridges.	School buildings.	Retaining wall, Sherman avenue.	Repairs.
							Market houses. Police stations.
R. D. Simms	5.00 6.00	\$311.47	\$161.52	\$263.06	\$78.00	-----	-----
C. T. Shoemaker	4.50 5.00	170.60	8.64	223.22	65.00	-----	-----
J. A. McDannel	4.00	207.64	107.67	175.37	52.00	-----	-----
H. M. Spencer	4.00	207.64	107.68	175.37	52.00	-----	-----
W. H. Edgar	3.50 4.00	207.65	107.68	175.36	52.00	-----	-----
H. B. van der Las	2.50 3.00	155.73	80.76	131.53	-----	-----	-----
Chas. Hume	3.00	155.73	75.35	125.78	-----	-----	-----
Wm. Morris	1.75 2.00	71.09	51.98	85.68	26.00	-----	-----
Geo. Arrington	1.75	-----	-----	-----	-----	-----	-----
A. T. Batts	1.75	68.10	68.11	74.98	-----	-----	-----
Wm. Donaldson	4.00	103.65	107.68	223.36	-----	-----	-----
H. M. Dickinson	3.25	84.22	79.37	140.48	-----	-----	-----
W. H. Voss	3.00	77.74	80.76	170.53	-----	-----	-----
W. J. W. Grey	3.00	76.24	80.75	131.54	-----	-----	-----
G. T. Hammer	2.00	15.74	-----	-----	-----	-----	-----
J. K. Hammer	2.00	-----	-----	50.00	-----	-----	-----
J. Wm. McConchie	2.50	69.01	69.41	113.26	-----	-----	-----
Blacksmiths	2.00 2.50	41.90	74.75	-----	-----	-----	\$25.00
Wheelwright and painter	2.50	-----	-----	-----	-----	-----	-----
Labor	1.75 1.50	104.45	17.89	49.72	-----	\$33.50	\$16.00
Total	2,128.00	1,280.00	2,309.04	273.00	33.50	16.00	32.50

	Rate.	Repairs.		Main sewer through lands of W. W. Davidge.	Work-house for males.	Chemical engine house, Congress Heights.	Total.
		Engine houses.	Schools.				
R. D. Simms	5.00 6.00	-----	-----	-----	-----	-----	\$1,846.00
C. T. Shoemaker	4.50 5.00	-----	-----	-----	-----	-----	1,158.00
J. A. McDannel	4.00	-----	-----	-----	-----	-----	1,252.00
H. M. Spencer	4.00	-----	-----	-----	-----	\$52.00	1,252.00
W. H. Edgar	3.50 4.00	-----	-----	-----	-----	-----	1,250.00
H. B. van der Las	2.50 3.00	-----	\$6.00	-----	\$39.00	34.50	901.00
Chas. Hume	3.00	-----	-----	-----	39.00	34.50	871.50
Wm. Morris	1.75 2.00	-----	26.00	-----	10.00	-----	567.75
Geo. Arrington	1.75	-----	-----	-----	-----	-----	21.00
A. T. Batts	1.75	-----	-----	\$7.69	-----	-----	533.75
Wm. Donaldson	4.00	-----	-----	25.39	-----	4.00	1,252.00
H. M. Dickinson	3.25	-----	-----	20.63	-----	-----	1,002.50
W. H. Voss	3.00	-----	39.00	-----	-----	39.00	939.00
W. J. W. Grey	3.00	-----	39.00	-----	19.04	-----	921.00
G. T. Hammer	2.00	-----	-----	-----	-----	-----	257.75
J. K. Hammer	2.00	-----	46.00	-----	12.70	-----	355.25
J. Wm. McConchie	2.50	-----	-----	-----	15.87	-----	737.50
Blacksmiths	3.25 2.00	\$2.50	-----	\$35.00	15.87	-----	1,671.13
Wheelwright and painter	2.50 2.50	-----	-----	-----	12.21	-----	215.00
Labor	1.75 1.50	-----	85.00	58.50	57.13	-----	3,791.17
Total	-----	32.50	241.00	93.50	186.53	127.00	20,795.30

REPORT OF THE PERMIT CLERK.

WASHINGTON, August 11, 1902.

MAJOR: Permits issued during the fiscal year ended June 30, 1902, were:	
Water connections	1,341
Water repairs	1,086
Water specials	307
	2,734
Sewer connections	1,552
Sewer repairs	939
Sewer specials	692
	3,183
Gas and electric lighting connections	1,339
Gas and electric lighting repairs	229
Gas and electric lighting specials	21
	1,589
Gas mains, lay	78
Electric conduits, construct (U. S. E. L. and P. E. P. Co.'s)	40
Electric conduits, construct and repair (telegraph and telephone)	8
Electric conduits, replace cables in	25
Electric railroad conduits, connect with sewer	1
Alleys, close temporarily	6
Alleys, grade	1
Alleys, place curb in	1
Alleys, place guards in, on fences	2
Alleys, put steam pipe in	1
Alleys, place well digger in, to drill well	1
Alleys, repair pavement	2
Arch, repair, in roadway	2
Bridge, construct foot	1
Bridges, haul loads in excess of 4 tons over	11
Bridges, place, over gutters	5
Bridges, replace electric cables on	1
Barbed wire, place on fence	1
Conduits, construct (United States Government)	2
Copings, construct, back of sidewalks	213
Curb, lower	1
Derrick, operate, in roadway	1
Drain pipes, lay and clear	8
Driveways across sidewalks, construct or repair	26
Excavations, make, in public space	7
Engines and steam shovels, move over streets	28
Fences, erect, to inclose parkings	361
Fences, repair, inclosing parkings	418
Gas service pipe, extend from building line	1
Guard stones, place in alleys	9
Gutters, lay	6
Hitching posts, place at curb	8
Lantern, place on post	1
Leads, lay across parkings	575
Leads, repair across parkings	328
Lights, hang electric and erect gas	49
Manholes, adjust to grade	4
Manholes, construct on electric conduits	3
Manholes, remove cover and enter sewer	3
Material, take from streets	14
Material, fill in streets	10
Parkings, grade	113
Parkings, pave	27
Parkings, repave	13
Parkings, remove pavement and sod	15
Parking, place material on, temporarily	1
Paving, take sample of, from street	1
Pins, drive, in roadway for guy wire	1
Poles, erect, replace, and remove telegraph and telephone	478
Roadways, close, temporarily	8
Roadways, operate stone crusher in	2

Roadways, repair	7
Sewer, connect down spout with	1
Sewer, enter	1
Sidewalks, haul and drive across	62
Sidewalks, lay	47
Sidewalks, occupy, for business purposes	9
Sidewalks, repair	54
Steps on parkings, erect, replace, or repair	297
Stop-cock boxes, gas, adjust to grade	24
Streets, grade	4
Trees, remove	12
Trees, white-wash	35
Trees, attach guys to	4
Tree space, pave	4
Walls, building retaining, on parking	25
Water tables, lay and repair	71
Wires, string overhead	115
Wires, overhead connections (U. S. E. L. and P. E. P. Co.'s)	24
Wires, overhead telephone connections	215

RAILROAD COMPANIES.

Anacostia and Potomac River Railroad Company	12
Brightwood	1
Capital	1
Capital Traction	5
City and Suburban	4
Columbia	3
Georgetown and Tenmallytown	1
Metropolitan	6
Washington and Great Falls	1
Baltimore and Ohio	4
Chesapeake and Ohio	1
Baltimore and Potomac	7

UNITED STATES GOVERNMENT.

Bureau of Engraving and Printing	1
Coast Survey	1
Department of the Interior	3
Insane Asylum	1
Officer in charge new Government Printing Office	2
Officer in charge Public Buildings and Grounds	2
Officer in charge Washington Aqueduct	1

Grand total 11,496

There has been an increase of 974 in the number of permits issued as compared with the fiscal year ended June 30, 1901; also in the amount of money paid to the collector of taxes, District of Columbia office, for fees, as will be shown by his report.

Permits issued during the fiscal year 1900-1901 10,522
Permits issued during the fiscal year 1901-2 11,496

The following table shows the number of permits issued during the last five years, and the amount of money paid for permit fees to the collector of taxes, District of Columbia, during that time:

Fiscal year.	Permits issued.	Fees paid.
1897-98	10,465	\$7,845
1898-99	11,330	7,692
1899-1900	10,589	6,797
1900-1901	10,522	6,583
1901-2	11,496	7,338

One thousand three hundred and twenty-seven communications have been referred to this office, briefs made on cards, the permits necessary written, the

papers indorsed with action taken and returned to the record office of the engineer department, or through that office to the division having charge of the inspection of the work for which the permits were issued.

Eighty-one names were recorded for laborers' places on District work during the year.

Very respectfully,

H. M. WOODWARD,
Permit Clerk, District of Columbia.

Maj. JOHN BIDDLE,

Corps of Engineers, U. S. Army.

Engineer Commissioner, District of Columbia.

REPORT OF THE CHIEF CLERK.

WASHINGTON, July 8, 1902.

MAJOR: I have the honor to submit the following report for the fiscal year ended June 30, 1902:

Communications received, briefed, and recorded	11,609
Indorsements, references, and reports thereon	58,045
Letters and orders prepared	3,842
Copies of contracts drawn	480
Vouchers and bills prepared, recorded, and forwarded	6,266

Schedules of bids received during the fiscal year for work and materials furnished, and statements of contracts for street improvements, sewers, buildings, construction material, supplies, and miscellaneous work, are herewith.

The following is a list of employees who are paid from various appropriations, and are employed in the record office: One clerk, at \$4.50 per diem, surface appropriations: three clerks, at \$4 per diem, pro rata, sewer, water, and surface appropriations; one clerk, at \$3.25 per diem, pro rata, sewer, water, and surface appropriations.

Very respectfully,

A. Y. LAKENAN,
Chief Clerk, Engineer Department.

Maj. JOHN BIDDLE,

Corps of Engineers, U. S. Army.

Engineer Commissioner, District of Columbia.

Statement of contracts for the construction of sewers for the fiscal year 1902.

No.	Date.	Name of contractor and address.	Location.	Character of work.
2965	July 12, 1901	John Jacoby, Wilmington, Del.	From Third and Cincinnati streets, through lands of W. W. Davidge and Trinity College to Michigan avenue.	Construct main circular sewer.
3009	Aug. 8, 1901	Lyons Bros., Washington, D. C.	Princeton street, between Sherman avenue and Brightwood avenue.	Construct 12-inch pipe sewer.
3037	Oct. 23, 1901	E. G. Gummel, Washington, D. C.	Harvard street, between Sherman and Brightwood avenues.	Construct 18-inch pipe sewer.
3043	Nov. 9, 1901	James A. Coyle, Washington, D. C.	Between New Jersey avenue and N. SE., and New Jersey avenue and First street SE. (Across square 330)	Construct and complete 3-foot 6-inch circular sewer.
			O street SW., between Delaware avenue and James Creek Canal.	Construct pipe sewer. Do.
3044	Nov. 13, 1901	W. F. Brenizer, Washington, D. C.	B street SW., between Sixth and Tenth.	Construct 3-foot 6-inch, 3-foot 9-inch sewer.
3048	Nov. 22, 1901	Lyons Bros.-----	Connecticut avenue NW., Rock Creek to Cathedral avenue.	Construct 4-foot, 2.75 by 4.125, 2 by 3 foot sewer.
3061	Apr. 16, 1902	W. F. Brenizer-----	West abutment of Massachusetts avenue bridge over Rock Creek.	Construct, complete, and keep in repair circular sewer.
			Sewerage pumping station, New Jersey avenue SE.	Construct coffer-dam, facade walls, outlet section, tide-gate chambers, etc.

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Statement of contracts for the construction of sewers for the fiscal year 1902—Continued.

No.	Date.	Name of contractor and address.	Location.	Character of work.
3062	May 29, 1902	Andrew Gleeson	East side intercepting sewer. "Sec. B."	Construct sewer left uncomplicated by John Jacoby. Do.
3063	.....do.....	M. F. Talty	From Third and Cincinnati Streets, through lands of W. W. Davidge and Trinity College, to Michigan avenue. (Eighth NE., between Hartford and Joliet.	Construct egg-shaped sewer.
3065	June 23, 1902	W. F. Brenizer Co.	Joliet street, between Seventh and Eighth; North Capitol street, between I and K.	Construct new invert.
3068	June 27, 1902	Arthur Cowsill	Seventeenth and E streets to Twenty-first and A NE.	Construct extension of Boundary sewer left uncomplicated by John Jacoby.

Statement of contracts for the improvement of streets, avenues, and roads for the fiscal year 1902.

No.	Date.	Name and address of contractor.	Location.	Character of work.
2976	July 24, 1901	Warner-Quinlan Asphalt Co.	Where ordered	Laying standard asphalt pavement. Grade.
3012	Aug. 13, 1901	Carmody & Hough	South Dakota avenue, Myrtle avenue, Carlton avenue, Central avenue, Indianapolis street, Vista street, in Woodridge subdivision.	
3013	.....do.....	.....do.....	Erie street, Pennsylvania avenue extended, California avenue, Providence street, Trenton street, Benning and Anacostia roads.	Grade, set curb, and pave gutters.
3014	Aug. 14, 1901	W. F. Brenizer	Third street NE., L to Florida avenue.	Grade.
3028	Sept. 23, 1901	Geo. B. Mullin	Connecticut avenue west of Rock Creek from Klingle Ford Bridge.	Grading.
3052	Dec. 6, 1901	Cogan Bros. & Forschner.	Massachusetts avenue from T to Observatory Circle.	Grade.
3053	Jan. 9, 1902	Colburn Paving Co.	Connecticut avenue, Columbia road to Wyoming avenue; California avenue from Columbia road westward.	Do.
3058	Mar. 8, 1902	M. F. Talty	Bunker Hill road between Harewood road and Baltimore and Ohio R. R.	Improve by grading, gutters, curb, and macadam.
3059	Mar. 19, 1902	W. L. Swormstedt	Joliet street, between Wisconsin avenue and Tunlaw road.	Complete work of grading, left uncomplicated by John Jacoby.

Statement of contracts for furnishing construction material for fiscal year 1902.

No.	Date.	Name and address of contractor.	To furnish—
2947	July 1, 1901	Potomac Terra Cotta Co., Washington, D. C.	Terra cotta material.
2951	June 28, 1901	J. H. McGill, Washington, D. C.	Natural cement.
2960	July 9, 1901	American Sewer Pipe Co., Pittsburgh, Pa.	Vitrified sewer bricks.
2961	.....do.....	.....do.....	Terra cotta sewer pipe.
2969	July 12, 1901	Angus Lamond, Washington, D. C.	Terra cotta pipe blocks, etc.
2978	July 17, 1901	Rowan Granite Co., Salisbury, N. C.	Granite curb.
2981	July 19, 1901	Savage Fire Brick Co., Keystone Junction, Pa.	Sewer invert bricks.
2991	July 24, 1901	Georgia Rough and Cut Stone Co., Augusta, Ga.	Granite curb.
2992	July 25, 1901	Frederick Brick Works, Frederick, Md.	Paving brick.
3020	July 31, 1901	Dunn's Mountain Granite Co., Woodside, N. C.	Curbing.
3045	Nov. 1, 1901	Warren Foundry and Machine Co., New York City.	Cast-iron water pipe.
3050	Dec. 3, 1901	Canfield Iron Works, Philadelphia, Pa.	Do.
3054	Jan. 14, 1902	National Mortar Co., Washington, D. C.	Portland cement.
3055	Jan. 24, 1902	Northampton Portland Cement Co., New York City.	Do.
3056	Feb. 10, 1902	M. J. Drummond & Co., New York City.....	Cast-iron water pipe.

Statement of construction, hauling, and miscellaneous contracts for fiscal year 1902.

No.	Date.	Name and address of contractor.	Description.
2953	July 6, 1901	Jas. Nolan & Sons, Washington, D.C.	Repair and change plumbing in Lincoln School, Second and C streets SW.
2954	July 3, 1901	American Electrical works, Phillipsdale, R. I.	Cables for telegraph and telephone service.
2955	July 5, 1901	Pavarini & Greer, Washington, D.C.	Construct 4-room school building on lots 61 to 68, block 5, Kenilworth.
2958	July 9, 1901	S. S. Shedd & Bro., Washington, D.C.	Repair and change plumbing in Randall School building, First and I SW.
2966	July 12, 1901	Washington Gas Light Company, Washington, D. C.	Operate, repair, and maintain street-lighting plant.
2967	do	Andrew Gleeson, Washington, D. C.	Excavate for foundation for new pumping station.
2988	July 22, 1901	S. S. Shedd & Bro., Washington, D.C.	Repair and change plumbing in Mott School building, Sixth and Trumbull streets.
2993	July 25, 1901	Lyons Bros., Washington, D. C.	Construct rubble masonry wall at Garfield Hospital grounds.
3001	Aug. 2, 1901	Jas. Nolan & Sons, Washington, D.C.	Repair and change plumbing in Addison School building, P street NW, between Thirty-second and Thirty-third streets.
3004	Aug. 12, 1901	Lyons Bros., Washington, D. C.	Crush, haul, and spread stone in Rock Creek Park.
3010	Aug. 10, 1901	Matthew Myers, Washington, D. C.	Grade school site, lots 7, 8, 9, and 10, square 98.
3011	do	Allis-Chalmers Co., Milwaukee, Wis.	Equipment for sewerage pumping station.
3015	Aug. 24, 1901	Gleeson & Humphrey, Washington, D.C.	Construct complete 4-room school building, lot 21, block 26, Petworth.
3016	do	do	Construct complete 8-room school building on lots 2-10, square 615.
3017	do	Cranford Paving Co., Washington, D.C.	Lay cement sidewalks where ordered.
3018	Aug. 28, 1901	H. I. Gregory, Washington, D. C.	Construct mechanical heating and ventilating apparatus, lots 18, 19, 20, and 21, block 26, Petworth.
3019	Aug. 29, 1901	Jas. M. Dunn, Washington, D. C.	Construct complete 12-room school building, lots 2 and 3, Keating's sub division of Prospect Hill.
3023	Aug. 15, 1901	Potomac Electric Power Co.	Furnish, operate, maintain incandescent electric lighting for streets.
3025	Sept. 11, 1901	E. J. Hannan, Washington, D. C.	Construct complete frame toilet building with sewer and water connections, etc.
3029	Sept. 24, 1901	Pavarini & Greer, Washington, D.C.	Construct complete a brick stable rear of lot 10, square 872.
3030	Sept. 30, 1901	Wm. E. Mooney, Washington, D. C.	Construct complete new boiler house with plumbing at Jefferson School building.
3033	Oct. 12, 1901	National Electrical Supply Co., Washington, D.C.	Furnish, deliver, and install 2 tubular boilers, etc., in boiler house of Curtis and Addison schools.
3034	Oct. 11, 1901	Talty & Allen, Washington, D. C.	Construct complete, etc., Melan arch bridge across Rock Creek on line of Rock Creek drive.
3035	Oct. 12, 1901	Geo. A. Fuller Co., Baltimore, Md.	Construct complete pumping station building on Trumbull street, between First and Fourth NW.
3038	Oct. 24, 1901	Brennan Construction Co., Washington, D. C.	Grade and construct foundations for masonry bridge across Rock Creek on line of Connecticut avenue extended.
3039	Oct. 26, 1901	Pavarini & Greer, Washington, D.C.	Construct and complete brick stable rear truck house F, on Whitney avenue, between Thirteenth and Fourteenth.
3041	Oct. 31, 1901	Heine Safety Boiler Co., St. Louis, Mo.	Furnish, deliver, and erect steam boilers for Manual Training School, P street NW, between First and Third.
3040	Nov. 6, 1901	A. Fred Jorss, Washington, D. C.	Furnish, erect, and complete wrought-iron fence around Western High School grounds, Thirty-fifth street NW, between T and U.
3042	Oct. 29, 1901	Michigan Brass and Iron Works, Detroit, Mich.	Furnish and deliver, complete and ready for operation, water gates for Trumbull street pumping station.
3047	Nov. 11, 1901	Allis-Chalmers Co., Milwaukee, Wis.	Design, build, deliver, erect, etc., a complete water end for pumping engine at Trumbull street pumping station.

Statement of construction, hauling, and miscellaneous contracts for fiscal year 1902—Continued.

No.	Date.	Name and address of contractor.	Description.
3049	Nov. 22, 1901	Brennan Construction Co., Washington, D. C.	Construct complete and keep in repair power house and nurses' home at Providence Hospital.
3051	Nov. 12, 1901	M. B. Casey, Washington, D. C.	Furnish and connect plumbing fixtures in Birney School,
3057	Feb. 10, 1902	Westinghouse, Church, Kerr & Co., New York City.	Furnish, deliver, and erect a steam-generating equipment at the Trumbull street pumping station.
3060	Apr. 15, 1902	Johnson & Morton, Utica, N. Y.	Furnish and install switchboards, Trumbull street pumping station.
3064	June 17, 1902	Pawling & Harnischfeger, Milwaukee, Wis.	Furnish and erect motor electric traveling crane at Trumbull street pumping station.
3066	June 26, 1902	William Rothwell, Washington, D. C.	Construct complete a dead house at Washington Asylum.
3067	do	United States Cast Iron Pipe and Foundry Co., Philadelphia, Pa.	Furnish and deliver cast-iron flanged pipe specials at Trumbull street pumping station.

Statement of contracts for general supplies, fiscal year 1902.

No.	Date.	Name and address of contractor.	To furnish—
2948	July 2, 1901	Wm. A. Pate, Washington, D. C.	Saddlery.
2949	July 1, 1901	Edw. Stevens, Washington, D. C.	Drugs.
2950	July 3, 1901	Patent Record Printing Co., Washington, D. C.	Blank forms and printing.
2952	June 28, 1901	Julius Lansburgh, Washington, D. C.	Furniture.
2956	July 8, 1901	Rudolph, West & Co., Washington, D. C.	Do.
2957	July 9, 1901	B. Rich & Sons, Washington, D. C.	Boots and shoes.
2959	do	Cuyler & Mohler, Washington, D. C.	Plumbers' materials.
2962	July 11, 1901	Judd & Detweiler, Washington, D. C.	Blank forms and printing.
2963	July 12, 1901	Thos. R. Riley, Washington, D. C.	Lumber.
2964	do	John Mitchell, jr., Washington, D. C.	Plumbers' material.
2968	July 13, 1901	W. M. Galt & Co., Washington, D. C.	Groceries, flour, etc.
2970	July 10, 1901	Globe Printing Co., Washington, D. C.	Blank forms and printing.
2971	July 12, 1901	Chas. White & Co., Washington, D. C.	Miscellaneous castings.
2972	July 15, 1901	J. F. Buchanan & Co., Washington, D. C.	Electrical supplies.
2973	do	Z. D. Gilman, Washington, D. C.	Drugs.
2974	July 16, 1901	M. Du Perow, Washington, D. C.	Electrical supplies.
2975	July 19, 1901	Mackall Bros., Washington, D. C.	Drugs.
2977	July 11, 1901	American Ice Co., Washington, D. C.	Ice.
2979	July 17, 1901	J. C. Ergood Co., Washington, D. C.	Groceries.
2980	July 18, 1901	Lansburgh & Bro., Washington, D. C.	Dry goods.
2982	July 19, 1901	James B. Lamble, Washington, D. C.	Hardware.
2983	July 20, 1901	S. R. Waters, Washington, D. C.	Groceries.
2984	do	Fred J. White, Washington, D. C.	Miscellaneous castings.
2985	do	National Electric Supply Co., Washington, D. C.	Electrical supplies
2986	July 22, 1901	Rufus P. Clarke	Dry goods.
2987	do	Hugh Reilly	Glass, paints, and varnish.
2989	July 23, 1901	J. Edw. Chapman, Washington, D. C.	Fuel.
2990	do	S. S. Daish & Sons, Washington, D. C.	Fuel and forage.
2994	July 26, 1901	Geo. F. Muth & Co., Washington, D. C.	Hardware, paints, oils, etc.
2995	July 29, 1901	Standard Oil Co., Washington, D. C.	Glass, paints, and varnish.
2996	July 24, 1901	Church & Stephenson, Washington, D. C.	Lumber.
2997	July 27, 1901	Johnson Bros., Washington, D. C.	Fuel.
2998	July 29, 1901	Barber & Ross, Washington, D. C.	Hardware.
2999	do	D. F. Parker, Washington, D. C.	Stationery.
3000	July 31, 1901	Chas. G. Stott & Co., Washington, D. C.	Do.
3002	Aug. 1, 1901	J. M. Dulany, Washington, D. C.	Do.
3003	Aug. 6, 1901	R. C. Ballantyne, Washington, D. C.	Do.
3005	Aug. 7, 1901	Frank Hume, Washington, D. C.	Groceries.
3006	Aug. 9, 1901	Blum Bros., Washington, D. C.	Furniture, hardware, tinware, groceries, and dry goods.
3007	Aug. 14, 1901	W. T. Galliher & Bro., Washington, D. C.	Lumber.
3008	Aug. 8, 1901	G. A. Shehan, Washington, D. C.	Do.
3021	Sept. 3, 1901	Thos. W. Smith, Washington, D. C.	Do.
3022	Sept. 6, 1901	J. M. Dulany, Baltimore, Md.	Schoolbooks.
3024	Aug. 19, 1901	T. T. Keane, Washington, D. C.	Fresh meat and corned beef.
3026	Sept. 9, 1901	Silver, Burdette Co., New York City	Schoolbooks.
3027	Sept. 16, 1901	R. C. Ballantyne, Washington, D. C.	Do.
3031	Sept. 30, 1901	W. B. Moses & Sons, Washington, D. C.	Furniture, dry goods.
3032	Oct. 1, 1901	American Book Co., New York City	Schoolbooks.
3036	July 9, 1901	Jordan & Christie, Boston, Mass.	Hardware.
3046	Nov. 11, 1901	B. S. Adams, Washington, D. C.	Miscellaneous printing, etc.

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Schedule of proposals for construction of sewer in Eighth street NE., between Hartford and Joliet streets, and in Joliet street between Seventh and Eighth streets, opened June 14, 1902.

Bidder	Ordinary excavation.	Red-brick masonry in Portland cement.	Vitrified-brick masonry in Portland cement.	Concrete masonry, Portland cement.	Vitrified inverted blocks.	24-inch diameter pipe.	Total cost.
Arthur Cowsill	\$0.95	\$13.97	\$19.95	\$8.00	\$0.80	\$1.20	\$5,301.85
W. F. Brenizer Co.	.63	13.33	16.67	6.85	.75	.99	4,244.99
Jas. A. Coyle	.65	14.00	19.00	7.35	.70	1.10	4,444.50
Lyons Bros	.64	13.75	18.50	7.35	.80	1.10	4,481.35

Schedule of proposals received June 14, 1902, for repair of North Capitol street sewer between I and K streets.

Bidder.	Ordinary excavation.	Red-brick masonry in Portland cement.	Vitrified-brick masonry, Portland cement.	Concrete masonry, Portland cement.	Total.
Arthur Cowsill	\$1.95	\$19.75	\$39.00	\$12.20	\$7,136.25
W. F. Brenizer Co.	1.75	18.00	28.00	11.00	5,945.00
Jas. A. Coyle	2.50	25.00	45.00	18.00	9,235.00
Lyons Bros	2.25	23.00	40.00	17.00	8,470.00

Schedule of proposals for constructing dead house at Washington Asylum, opened June 16, 1902.

Bidder.	Amount.	Bidder.	Amount.
Wm. Rothwell	\$1,065	D. F. Mockabee	\$1,239
Pa. Irini & Greer	1,120	Gleeson & Humphrey	1,240
Arthur Cowsill	1,153		

Schedule of bids received for constructing coal and ash pockets in Trumbull street pumping station, opened June 7, 1902.

Bidder.	Amount.	Bidder.	Amount.
Henri Kampmann	a \$7,850	Roebling Construction Co.	\$13,707
W. B. Upton Co	12,500	The Southern Expanded Metal Co.	13,707

a Hennebeque system.

Schedule of proposals for furnishing cast-iron water pipe, opened October 19, 1901.

Bidder.	Cost per ton.	Bidder.	Cost per ton.
Warren Foundry and Machine Co.	\$24.90	M. J. Drummond & Co	\$26.90
United States Cast Iron Pipe and Foundry Co.	26.40	R. D. Wood & Co	25.90

Schedule of proposals for improving Bunker Hill road, opened March 1, 1902.

Bidder.	Grading, price.	Unloading macadam, price.	Paving gutters, price.	Setting curb, price.	Relying sidewalk, price.
M. F. Talty	\$0.28	\$0.34	\$.40	\$0.17	\$0.36
W. F. Brenizer	.30	.42	.70	.23	.50
Lyons Bros	.29 $\frac{1}{2}$	.30	.62	.25	.35

Schedule of proposals for 40,000 feet of cast-iron pipe opened February 1, 1902.

Bidder.	Price per ton.	Cost.
M. J. Drummond & Co., New York, N. Y.	\$26.90	\$14,256.00
Camden Iron Works, Camden, N. J.	28.96	15,638.40
Warren Foundry and Machine Co., New York, N. Y.	29.20	15,708.00
United States Cast Iron Pipe and Foundry Co., Philadelphia, Pa.	29.40	15,876.00

Schedule of proposals for completing the grading of Joliet street, opened March 8, 1902.

Bidder.	Price.	Amount.	Bidder.	Price.	Amount.
W. L. Swormstedt	\$0.29	\$7,250	Pavarini & Greer	\$0.40	\$10,000
Geo. B. Mullen	.33	8,250	Owen Patterson	.45	11,250

Schedule of proposals for steam generating equipment at Trumbull street pumping station, opened December 14, 1901.

Crook, Homer & Co., Baltimore, Md.:					
Cahall boilers, Roney stokers, Green economizers.					\$48,000
Cahall boilers, Murphy stokers, American economizers.					48,000
B. & W. boilers, Roney stokers, Green economizers.					50,000
Heine boilers, ^a Roney stokers, Green economizers.					46,500
Westinghouse, Church, Kerr & Co., New York, N. Y.:					
Cahall boilers, Roney stokers, Westinghouse economizers.					49,785
B. & W. boilers, Roney stokers, Westinghouse economizers.					50,964
Harris & Algol, Camden, N. J.:					
National boilers, Wilkinson stokers, American economizers.					52,812
National boilers, Wilkinson stokers, Green economizers.					53,412
National boilers, Roney stokers, American economizers.					53,662
National boilers, Murphy stokers, American economizers.					54,612

^a Heine boilers not acceptable under specifications.

Schedule of proposals opened November 2, 1901, for furnishing design buildings and erecting a complete water end for the pumping engine.

Bidder.	Amount.	Bidder.	Amount.
Allis Chalmers Co.	\$18,500	Snow Steam Pump Works.	\$28,627
Camden Iron Works.	28,350	Barr Pumping Engine Co.	48,000

Schedule of bids for furnishing 9,000 barrels Portland cement, opened December 19, 1901.

Bidder.	Cement house.	Tracks Baltimore and Ohio Railroad.	Tracks Philadelphia, Wilmington and Baltimore Railroad.
Northampton Portland Cement Co.	\$1.47	\$1.43	\$1.43
National Mortar Co.	1.435	1.485	1.415
Atlas Portland Cement Co.	1.51	1.47	1.47
Lehigh Portland Cement Co.	1.52	1.48	1.48
Alpha Portland Cement Co.	1.55	1.50	1.50
Walter T. Bradley Co.	1.62	1.55	1.55
Cranford Paving Co.	1.65	1.60	1.60
Reading Cement Co.		1.60	
Wm. Wirt Clarke & Son	1.84	1.80	1.80

Schedule of proposals for grading Connecticut avenue from Columbia road to Wyoming avenue and California avenue from Columbia road westward, opened December 28, 1901.

Bidder.	Remov-ing cobble, brick, etc.	Remov-ing curb.	Remov-ing asphalt pave-ment.	Excava-tion.	Total.
Colburn Paving Co.	\$0.12	\$0.08	\$0.15	\$0.28	\$6,360
Geo. B. Mullin	.10	.06	.25	.32	7,206
Carmody & Hough	.25	.15	.40	.31	7,545

Schedule of proposals for constructing a manual training school, Seventh and G streets SE., opened November 30, 1901.

Bidder.	Red brick, machine-made.	Red brick, hand-made.	Light brick.	Supple-mental.
N. H. Thomas	\$15,900.00			\$12,951.00
James F. Oliver	17,040.00	\$17,900.00	\$18,300.00	13,748.00
Arthur Cowsill	15,762.00	16,157.00	16,919.00	14,799.32

Schedule of proposals for grading Massachusetts avenue from T street to Observatory circle, opened November 23, 1901.

Bidder.	Price.	Amount.	Bidder.	Price.	Amount.
Cogan Bros. & Forschner	\$0.19 $\frac{1}{4}$	\$49,375	Lane Bros. & Co	\$0.32	\$80,000
Talty & Allen	.21	52,500	Andrew Gleeson	.33 $\frac{1}{4}$	83,750
W. F. Brenizer	.27 $\frac{1}{2}$	69,250	Colburn Paving Co	.47	117,500
R. A. Malone & Co	.28	70,000			

Schedule of proposals for furnishing and delivering cast-iron water pipe.

Bidder.	12-inch pipe.	3-inch pipe.	4-inch pipe.	Total.
	Per ton.	Per ton.	Per ton.	
Camden Iron Works	\$24.70	\$24.70	\$24.70	\$11,786.84
M. J. Drummond & Co	24.60	27.50	26.50	11,791.70
United States Cast Iron Pipe and Foundry Co	25.33	29.37	27.37	12,150.04
Warren Foundry and Machine Co	25.50	25.50	25.50	12,168.60

Schedule of proposals for construction of sewers, opened November 2, 1901.

SEWER A.

[B street SW., between Sixth and Tenth streets.]

Bidder.	Ordi-nary ex-cavation.	Brick mason-ry, nat-ural cement mortar.	Vitrified brick mason-ry, Port-land-cement mortar.	Concrete mason-ry, nat-ural cement mortar.	Concrete mason-ry, Port-land cement mortar.	Total cost.
Warren F. Brenizer	\$0.59	\$11.00	\$15.20	\$5.06	\$6.90	\$7,683.10
E. G. Gummel	.70	12.50	19.50	5.50	7.00	8,731.50
Lyons Bros	.64	11.00	18.00	5.75	6.75	8,208.65

Schedule of proposals for furnishing and delivering cast-iron water pipe—Cont'd.
SEWER B.

[Connecticut avenue NW., from Rock Creek to Cathedral avenue.]

Bidder.	Ordinary excavation.	Brick masonry, natural cement mortar.	Vitrified brick masonry, Portland cement mortar.	Concrete masonry, natural cement mortar.	Concrete masonry, Portland cement mortar.	Vitrified invert block.	Total cost.
W. F. Brenizer.....	\$0.58	\$11.00	\$15.20	\$5.06	\$6.90	\$0.70	\$12,722.76
E. G. Gummel.....	.90	12.50	19.50	.50	7.00	.80	15,843.40
Lyons Bros.....	.75	11.50	18.50	6.00	7.00	.70	14,571.25

SEWER C.

[Across square 330, along Florida avenue NW., between Tenth and Eleventh streets, and along Eleventh street, between Florida avenue and Clifton street.]

Bidder	Ordinary excavation.	Brick masonry, natural cement mortar.	21-inch diameter pipe.	18-inch diameter pipe.	Total cost.
W. F. Brenizer.....	\$0.61	\$11.00	\$0.79	\$0.75	\$2,283.05
E. G. Gummel.....	.90	12.50	.80	.70	2,838.50
Lyons Bros.....	.60	11.00	.74	.64	2,165.30
Jas. A. Coyle.....	.50	11.00	.68	.60	1,904.80

SEWER D.

[O street SW., between Delaware avenue and James Creek Canal.]

Bidder.	Ordinary excavation.	Brick masonry, natural cement mortar.	24-inch diameter pipe.	Total cost.
Warren F. Brenizer.....	\$0.71	\$12.00	\$0.99	\$745.10
E. G. Gummel.....	.75	12.50	.90	725.50
Lyons Bros.....	1.00	15.00	1.50	1,000.00
Jas. A. Coyle.....	.40	11.00	.80	590.00

Schedule of proposals for constructing a power house and nurses' home at Providence Hospital, opened October 26, 1902.

Bidder.	Amount.
Brennan Construction Co.....	\$49,850.00
H. E. Burgess.....	75,000.00

Proposals for grading certain streets and a school site, opened July 27, 1901.

Bidder.	Third street NE., L to Florida avenue.	Schoolsite, square 938.	South Dakota avenue and other streets, Woodridge.
	Per cu. yd.	Per cu. yd.	Per cu. yd.
Hatton & Parker.....	\$0.34	\$0.44	\$0.30
Patrick Keelty.....	.42		.27
Carmody & Hough.....	.29	.59	.29
Andrew Gleeson.....	.34	.45	
L. N. Simpson.....		.48	
M. F. Talty.....	.29	.36	.32
Matthew Myers.....	.35	.35	.30
Killeen & Ball.....	.34		.31
W. F. Brenizer.....	.27		

Proposal for sewage-pumping plant, opened July 13, 1901.

Name and address of bidder.	Equipment A, regular.	Complete equip- ment.		Equipment B, regular.	Partial equip- ment, alter- nate.
		Alter- nate, No. 1.	Alter- nate, No. 2.		
Allis-Chalmers Co., Milwaukee, Wis.	\$253,000	\$231,000	\$241,000	\$158,750	\$146,000
United Engineering and Contracting Co., New York City	329,450			239,375	
Camden Iron Works, Philadelphia, Pa.	323,000			212,000	

Proposals for grading and regulating suburban streets and avenues, opened July 27, 1901.

Bidder.	Grading (per cu- bic yard).	Setting 6 by 20 curb (per linear foot).	Paving gutters (per square yard).	Unload- ing mac- adam (per cu- bic yard).	Over- hauling macad- am (per cubic yard).	Total.
Carmody & Hough	\$0.27	\$0.15	\$0.23	\$0.29	\$0.06	\$8,237.10
M. F. Talty	.30	.20	.25	.37	.22	10,150.10

Schedules of bids received July 20, 1901, for repairs and changes in plumbing in Addison and Curtis school buildings.

Bidder	Amount.
E. J. Hanan	\$15,740
S. S. Shedd & Bro	15,388
Jas. Nolan & Sons	13,324

Schedule of bids received for changing plumbing in teachers' toilet room of Peabody School, opened June 18, 1901.

Bidder.	Amount.
Jas. Nolan & Sons	\$298
Kennedy & Schaefer	307
M. B. Casey	180

Schedule of proposals for construction of a rubble wall along the east side of Garfield Hospital grounds, opened July 13, 1901.

Bidder.	Amount.	Bidder.	Amount.
Lyons Bros	\$1,137.00	Jos. Robson	\$1,200
Cranford Paving Co.	1,169.25	Killeen & Ball	1,675

Schedule of proposals received for reconstruction of plumbing in the Mott School building, opened June 29, 1901.

Bidder.	Amount.
Jas. Nolan & Sons	\$5,799
Wm. Rathwell	5,789
S. S. Shedd & Bro	5,287

Schedule of proposals for excavating for foundation of new pumping station, opened June 30, 1901.

Bidder.	Price per cubic yard.
Andrew Gleeson.....	\$0.24
Carmody & Hough.....	.28
J. H. Hammersley.....	.50

Schedule of proposals for constructing an eight-room school building on lots 2 to 10, square 615, P street NW., between North Capitol street and First street, opened August 3, 1901.

Bidders.	Red brick.	Brick other than red, \$25 per M.	Brick other than red, \$30 per M.	Supplemental bid.
Gleeson & Humphrey.....	\$42,200.00	\$43,100.00	-----	\$33,185.00
J. M. Dunn.....	43,800.00	45,080.00	\$45,580.00	-----
Meads & Reynolds.....	44,000.00	44,950.00	45,000.00	-----
Arthur Cowsill.....	51,605.00	52,605.00	66,045.00	-----

Schedule of proposals for constructing a four-room school building on lots 18, 19, 20, and part of 21, block 26, Petworth, Philadelphia street, between Eighth street and Brightwood avenue NW., opened August 3, 1901.

Bidder.	Red brick.	Brick, other than red, \$25 per M.	Brick, other than red, \$30 per M.	Supplemental bid.
Gleeson & Humphrey.....	\$25,500	\$26,000	-----	\$20,196
Meads & Reynolds.....	26,800	27,500	\$28,000	-----

Proposals for the completion of plumbing in Birney School, Nichols avenue, Anacostia, opened August 2, 1901.

Bidder.	Amount.	Bidder.	Amount.
Wm. Rathwell.....	\$1,633	S. S. Shedd & Bro.....	\$1,498
Jas. Nolan & Sons.....	1,461	M. B. Casey.....	1,098

Schedule of proposals for crushing stone in Rock Creek Park, opened August 3, 1901.

Bidder.	Price per cubic yard.	Bidder.	Price per cubic yard.
Lyons Bros.....	\$0.98	Killeen & Ball.....	\$1.65
G. B. Mullin.....	1.34	Cranford Paving Co.....	1.45

Schedule of proposals for laying cement sidewalks in the District of Columbia, opened August 10, 1901.

Bidder.	Class A.	Class B.	Total amount.
Cranford Paving Co.....	\$0.89	\$1.07	\$45,760.00
Brennan Construction Co.....	.92	1.11	47,330.00
E. G. Gunnel.....	.94	1.08	47,980.00
F. M. Kemp & Sons.....	.98	1.08	49,700.00
Colburn Paving Co.....	.97	1.21	50,180.00
R. A. Malone & Co.....	1.15	1.20	57,850.00
Franklin Construction Co.....	1.18	1.28	59,700.00

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Schedule of proposals for granolithic work about Webb and Dent schools, opened August 16, 1901.

Bidder.	Webb School.	Dent School.
Cranford Paving Co	\$985.55	\$955.65
Brennan Construction Co	893.28	887.52

Schedule of proposals for constructing a school building at Lincoln avenue and Prospect street NE:

Bidder.	Red brick, machine made.	Red brick, hand made.	Light brick.	Supplemental bid.
J. M. Dunn	\$45,600	\$45,900	\$46,950	
Pavarini & Greer	48,600	48,860	49,500	\$500 to be deducted, 1, 2, and 3.
Arthur Cowsill	48,400	48,265	49,472	
Gleeson & Humphrey	50,500	50,700	52,000	\$1,900 to be deducted, 1, 2, and 3.
Meads & Reynolds	51,338	51,363	52,863	\$50,800.
D. F. Mockabee	53,391	53,891	55,041	\$52,780.

Schedule of proposals for toilet building and plumbing, Old Men's Home, Washington Asylum, opened August 24, 1901.

Bidder.	Amount.
E. J. Hannan	\$1,475
Wm. Rothwell	1,499
Jas. Nolan & Sons	1,736

Schedule of proposals for steel arched ribs for Melan arch bridge across Rock Creek, on line of Rock Creek drive, opened August 31, 1901.

Name and address of bidder.	Amount.	Name and address of bidder.	Amount.
Penn. Bridge Co., Beaver Falls, Pa.	\$939	American Bridge Co., Baltimore,	
New Jersey Foundry and Machine Co., New York City	991	Md.	\$1,068
Jas. C. McGuire, New York City		Jas. C. McGuire, New York City	1,185

Schedule of proposals for Melan arch bridge across Rock Creek, on line of Rock Creek drive, opened August 31, 1901.

Name and address of bidder.	Amount.	Name and address of bidder.	Amount.
Talty & Allen, Washington, D. C.	\$14,890		
J. C. McGuire, New York City	18,000	W. B. Upton & Co., Washington,	
Cranford Paving Co., Washington, D. C	19,599	D. C	\$23,900

Schedules of proposals for constructing stable for fire department on rear of lot 10, block 872, North Carolina avenue, between Sixth and Seventh streets SE., opened September 7, 1901.

Bidder.	Amount.
Pavarini & Greer	\$4,700
Burgess & Parsons	4,774

Proposals for improving Connecticut avenue west of Rock Creek, opened September 7, 1901.

Bidder.	Grading below present surface.	Grading above present surface.	Macadam removed and re- placed.
	Per cu. yd.	Per cu. yd.	Per cu. yd.
G. B. Mullin	\$0.77	\$0.33	\$0.50
Lyons Bros .....	.89	.43	.63
Coogan Bros. & Forschner	1.00	.63	.60

Schedule of proposals for furnishing and erecting boiler at male workhouse, Washington Asylum, opened September 10, 1901.

Bidder.	Amount.	Bidder.	Amount.
W. H. McCuen & Co	\$914	Ellicott Machine Co	\$1,240
National Electrical Supply Co	944	W. W. Biggs Heating and Ventilating Co.	1,395
Forsberg & Murray	976		

Schedule of proposals for furnishing and erecting fences around Dent and Webb schools.

Bidder.	Dent School.	Webb School.
J. W. Swainson	\$526.00	\$220.00
Brennan Construction Co	762.00	300.00
J. M. Dunn	678.75	275.00

Schedule of proposals for new boiler house, etc., for Jefferson School building, Sixth and D streets SW.

Bidder.	Amount.
W. E. Mooney	\$4,813
J. F. Leary	4,997
Pavarini & Greer	6,200

Schedule of proposals for furnishing and erecting two steam boilers, etc., at Custis School building, O street NW., between Thirty-second and Thirty-third streets, opened September 25, 1901.

Bidder.	Amount.
National Electrical Supply Co	\$2,858.35
Ellicott Machine Co	4,890.00

Schedule of proposals for constructing stable in rear of truck house on Whitney avenue, between Thirteenth and Fourteenth streets NW., opened September 21, 1901.

Bidder.	Amount.
J. F. Leary	\$1,897
Pavarini & Greer	1,800

Schedule of bids received September 21, 1901, for pumping-station building, Trumbull street.

Name and address of bidder.	Brick facing.						
	Granite base, Beaver Dam marble.	Granite base, South Dover marble.	Granite base, Indiana limestone.	All stone granite.	Granite base, Vermont "D" marble.	Granite base, Vermont "A" marble.	Granite base, Vermont "B" marble.
E. M. Noel, Baltimore, Md.	\$298,000.00	\$312,000.00	\$290,000.00	\$325,000.00			
Geo. A. Fuller Co., Baltimore, Md.	305,282.00				\$314,282.00	\$326,282.00	\$320,282.00
Arthur Cowsill, Washington, D. C.	344,200.00	340,000.00	332,000.00		\$354,000.00		
Richardson & Burgess, Washington, D. C.	c 342,935.00						
R. A. Malone & Son, Washington, D. C.	377,800.00						
W. E. Speir, Washington, D. C.	366,165.00						
Penn Bridge Co., Beaverfalls, Pa.		317,700.00	310,700.00		\$336,335.00	347,355.00	341,335.00
Cramp & Co., Philadelphia, Pa.	335,000.00						349,000.00
P. J. Carlin & Co., Brooklyn, N. Y.	325,590.00	319,583.00	304,900.00				

Name and address of bidder.	Brick facing.					
	Granite base, Georgia marble.	Granite base, Lee marble.	Granite base, Vermont marble.	Granite base, Columbian marble.	Granite base, Vermont "C" marble.	Granite base, Tennessee white marble.
E. M. Noel, Baltimore, Md.						
Geo. A. Fuller Co., Baltimore, Md.						
Arthur Cowsill, Washington, D. C.					\$354,000.00	
Richardson & Burgess, Washington, D. C.	\$342,935.00					
R. A. Malone & Son, Washington, D. C.	\$379,800.00	374,800.00	\$375,800.00			
W. E. Speir, Washington, D. C.	368,165.00	363,165.00	364,165.00		\$336,335.00	336,335.00
Penn Bridge Co., Beaverfalls, Pa.						
Cramp & Co., Philadelphia, Pa.						
P. J. Carlin & Co., Brooklyn, N. Y.	323,590.00	325,590.00				

Name and address of bidder.	Ashlar masonry facing.						
	Granite base, Beaver Dam marble.	Granite base, Indiana limestone.	Granite base, South Dover marble.	All granite.	Columbian marble and granite base.	Granite base, Georgia marble.	Granite base, Lee marble.
E. M. Noel, Baltimore, Md.	\$336,000.00	\$320,000.00	\$360,000.00	\$375,000.00			
Geo. A. Fuller Co., Baltimore, Md.	a 345,282.00						
Arthur Cowsill, Washington, D. C.	380,000.00		376,000.00		\$378,000.00		
Richardson & Burgess, Washington, D. C.	c 388,379.00						
R. A. Malone & Son, Washington, D. C.	426,750.00					\$441,400.00	\$428,400.00
W. E. Speir, Washington, D. C.	473,050.00					436,050.00	424,050.00
Penn Bridge Co., Beaverfalls, Pa.			397,700.00		440,000.00		
Cramp & Co., Philadelphia, Pa.	379,000.00						
P. J. Carlin & Co., Brooklyn, N. Y.	390,000.00	357,500.00	396,600.00				

^aNo. 2 marble.

^b"D," "C," or "E" marble.

^cOr Lee.

^dNo. 1 limestone.

^eOr Tennessee white marble.

Schedule of bids received September 21, 1901, for pumping-station building, Trumbull street—Continued.

Name and address of bidder.	Ashlar masonry facing.					
	Granite base, Vermont marble.	Granite base, Vermont "B" marble.	Granite base, Vermont "C" or "E" marble.	Granite base, Vermont "D" marble.	Granite base, Vermont "A" marble.	Granite base, Tennessee white marble.
E. M. Noel, Baltimore, Md.						
Geo. A. Fuller Co., Baltimore, Md.						\$395,282.00
Arthur Cowsill, Washington, D. C.						\$345,282.00
Richardson & Burgess, Washington, D. C.						
R. A. Malone & Son, Washington, D. C.	\$427,000.00					
W. E. Speir, Washington, D. C.	423,050.00					
Penn Bridge Co., Beaverfalls, Pa.		\$447,000.00	\$435,000.00	\$424,700.00	452,300.00	
Cramp & Co., Philadelphia, Pa.		433,000.00	415,000.00			384,000.00
P. J. Carlin & Co., Brooklyn, N. Y.				364,000.00		

^aVermont "C."

Schedule of proposals for furnishing and erecting complete steam boilers at the manual training school No. 2, P street NW., between First and Third.

Bidder.	Amount.
Heine Safety Boiler Co.	\$5,316
Forsberg & Murray (complete)	5,575
Hawley Down Draft Furnace Co.	1,300

Schedule of proposals for watergates for Trumbull street pumping station, received October 5, 1901.

Bidder.	Four 30-inch.	One 30-inch.	Seven 36-inch.	Three 36-inch.	Three 42-inch.	Three 48-inch.	Total.
Michigan Brass and Iron Works	\$6,000	\$1,290	\$12,845	\$4,500	\$5,250	\$6,300	\$30,185
Coffin Valve Co.	6,180	7,315	13,125	4,686	5,430	6,300	37,035
Rensselaer Manufacturing Co.	6,208	1,345	13,300	4,830	5,619	6,900	38,207
Ludlow Valve Co.	6,420	1,375	13,475	4,875	5,580	6,630	38,355
Chapman Valve Manufacturing Co.	6,700	1,410	14,035	4,875	5,535	6,975	39,530
Eddy Valve Co.	6,760	1,450	14,350	4,770	5,760	6,525	39,615

Bidder.	Ordinary excavation.	Brick masonry, Portland cement.	Vitrified brick masonry, Portland cement mortar.	Concrete masonry A.	Concrete masonry B.	6-inch pipe under-drain.	Total cost.
			550 cu. yds.				
E. G. Gummel	\$1.20	\$16.00	\$25.00	\$8.50	\$8.00	\$0.20	\$42,365.00
	1.50	12.00	22.00	7.75	7.75	.25	47,668.75
John Jacoby	22,600 cu. yds.	150 cu. yds.	170 cu. yds.	550 cu. yds.	415 cu. yds.	3,000 lin. ft.	
E. G. Gummel	\$1.20	\$16.00	\$25.00			\$8.00	\$0.20
	1.50	12.00	22.00			7.75	.25
John Jacoby	22,600 cu. yds.	710 cu. yds.	170 cu. yds.	550 cu. yds.	415 cu. yds.	3,000 lin. ft.	
E. G. Gummel	\$1.20	\$16.00	\$25.00			\$8.00	\$0.20
	1.50	12.00	22.00			7.75	.25
John Jacoby							

Schedule of proposals for concrete floors, manual training school, Seventh street and Rhode Island avenue NW., opened September 28, 1901.

Bidder.	Amount.	Bidder.	Amount.
M. B. Upton & Co.	\$1,548	Cranford Paving Co.	\$1,300
Lyons Bros.	1,545	Colburn Paving Co.	1,237

Schedule of proposals for constructing foundations for masonry bridge across Rock Creek, on line of Connecticut avenue, opened October 12, 1901.

Bidder.	Excavation.	Concrete foundations.	Total amount.	Bidder.	Excavation.	Concrete foundations.	Total amount.
Lyons Bros.	\$0.59	\$5.87	\$29,991.00	James C. McGuire...	\$0.535	\$5.61	\$28,143.00
Brennan Construction Co.	.58	5.07	27,171.00	Cranford Paving Co.	.80	5.00	30,900.00

Schedule of proposals for constructing a power house and nurses' home for Providence Hospital.

Bidder.	Amount.
Brennan Construction Co.	\$49,850.00
H. E. Burgess.	75,000.00

Schedule of proposals for furnishing cast-iron water pipe received June 7, 1902.

Bidders.	Amount.
United States Cast Iron Pipe and Foundry Co.	\$18,700.00
Camden Iron Works.	25,000.00

Schedule of proposals for furnishing and erecting electric crane for Trumbull street pumping station, opened May 24, 1902.

Name and address of bidder.	Amount.	Name and address of bidder.	Amount.
New Jersey Foundry and Machine Co., New York.	\$5,510.00	Niles-Bement-Pond Co., Philadelphia, Pa.	\$5,100.00
Alliance Machine Co., Alliance, Ohio.	5,975.00	Powling & Harnishfegen, Milwaukee, Wis.	5,000.00
Edw. J. Etting, Philadelphia, Pa.	5,290.00		

Proposals for improving Bunker Hill road, opened March 1, 1902.

Bidder.	Grading.	Unloading macadam.	Paving gutters.	Setting curb.	Relaying sidewalk.	Total.
M. F. Talty.	\$0.28	\$0.34	\$0.40	\$0.17	\$0.30	\$6,322.00
W. F. Benizer.	.30	.42	.70	.23	.50	7,682.00
Lyons Bros.	.29 $\frac{1}{2}$	.30	.62	.25	.35	7,263.00

Schedule of proposals for two switchboards for Trumbull street pumping station, opened April 5, 1902.

Bidder.	Amount.	Bidder.	Amount.
General Electric Co	\$2,847.00	Western Electric Co	\$2,917.00
Do ^a	2,300.00	McCay Engineering Co	2,939.00
D'Ober Engineering Co	2,845.00	Johnson & Morton	2,415.00
F. A. LaRoche Co	2,825.00	National Electric Supply Co	3,047.50

^a Alternative bid.

Schedule of bids for constructing cofferdam at sewerage pumping station, opened April 5, 1902.

Bidder.	Piling.	Lumber.	Clay and gravel filling.	Total cost.
Andrew Gleeson	\$0.29	\$38.00	\$0.89	\$6,195.00
Washington Construction Co .....	.30	50.00	1.00	7,450.00
Warren F. Brenizen .....	.20	34.90	.90	5,341.00
Sanford & Brooks Co .....	.19	35.50	1.00	5,430.00
E. G. Gummel .....	.36	50.00	2.00	8,840.00

Schedule of proposals for construction of cofferdam, façade walls, outlet section of sewer and tide-gate chambers and storm-water conduits at the sewerage pumping station, opened April 5, 1902.

Bidder.	Ordinary excavation.	Red brick masonry, Portland cement.	Vitrified brick masonry, Portland cement.	Six-inch diameter pipe.	Concrete masonry "A" in place.	Concrete masonry "B" in place.	Concrete masonry "C" in places.	Piling.	Lumber.	Brass pipes for tide-gate hinge bolts, etc.	Steel I beams.	Cast-iron bed plates.	Cast-iron frames and covers in place over tide-gate wells.	Cast-iron frames and covers in place over stop-plank wells.	Granite coping in place.
Andrew Gleeson	\$0.97	\$10.50	\$18.00	\$0.15	\$8.90	\$6.50	\$6.25	\$0.28	\$39.00	\$0.75	\$0.045	\$0.04	\$65.00	\$65.00	\$5.50
Washington Construction Co .....	.80	10.30	17.50	.15	8.00	7.00	6.00	.25	38.00	1.00	.045	.04	60.00	70.00	6.75
Warren F. Brenizen .....	.90	12.75	18.20	.15	7.95	7.20	6.10	.18	33.50	1.00	.057	.025	25.00	26.00	5.90
Sanford & Brooks Co .....	.75	10.00	17.75	.20	8.25	7.50	6.75	.19	37.50	1.00	.04	.04	60.00	65.00	6.50
E. G. Gummel	1.00	13.00	22.00	.30	10.00	9.00	8.00	.36	47.00	3.00	.0475	.05	75.00	75.00	8.00

Schedule of proposals for construction of sewers opened May 17, 1902—Incomplete work of John Jacoby.

[Through grounds W. D. Davidge and Trinity College.]

Bidder.	Ordinary excavation.	Brick masonry, natural cement mortar.	Vitrified brick masonry, Portland cement mortar.	Concrete masonry, natural cement mortar.	Concrete masonry, Portland cement mortar.	Total cost.
Andrew Gleeson	\$0.50	\$12.00	\$19.00	\$5.30	\$6.50	\$11,495.70
A. T. Cavan & Co .....	.47	10.50	17.50	5.10	6.90	11,199.85
W. B. Upton Co .....	.55	10.22	19.70	5.38	7.81	12,433.02
M. F. Talty .....	.50	11.00	18.00	5.00	6.50	11,175.00
J. Jacoby's prices .....	.36	10.50	19.00	5.00	6.50	10,550.60

Schedule of proposals for construction of sewers, opened May 17, 1902—Incompleted work of John Jacoby.

[Sec. B, east side intercepting sewer.]

Bidder.	Ordinary excavation.	Brick masonry, natural cement mortar.	Vitrified brick masonry, Portland cement.	Concrete masonry, natural cement.	Total cost.
Andrew Gleeson.....	\$0.79	\$0.00	\$18.00	\$5.00	\$84,628.00
B. J. Sullivan.....	1.00	12.00	20.00	7.00	108,320.00
M. F. Talty.....	1.00	12.00	20.00	5.90	106,868.00
J. Jacoby's prices.....	.50	9.00	16.00	5.00	68,140.00

Schedule of proposals for construction of sewers opened May 17, 1902—Incompleted work of John Jacoby.

[Boundary sewer between Seventeenth and E streets NE. and Twenty-first and A streets NE.]

Bidder.	Ordinary excavations.	Embankment over sewer.	Brick masonry, natural cement mortar.	Red-brick masonry, Portland cement mortar.	Vitrified brick masonry, Portland cement mortar.	Concrete masonry, natural cement mortar.	Red-brick arch, natural cement mortar.	Total cost.
Andrew Gleeson.....	\$0.39	\$0.18	\$0.15	\$10.40	\$18.00	\$4.95	\$9.15	\$147,796.90
B. J. Sullivan.....	.41	.18	.50	10.10	18.00	6.00	7.50	149,285.00
Owen Patterson.....	.45	.25	12.75	13.00	18.00	7.25	12.75	200,141.50
Arthur Cowsill.....	.33	.21	9.09	10.59	15.69	3.99	8.73	135,387.78
W. B. Upton.....	.35	.20	9.30	11.25	17.90	4.81	9.30	147,986.80
J. Jacoby's prices.....	.30	.18	8.50	10.00	18.00	4.20	8.50	134,236.00

Schedule of bids received June 3, 1902, for sewer bricks.

Bidder.	Washington.	Georgetown.	County east of Eastern Branch.	Between Eastern Branch and Rock Creek.	West of Rock Creek.	Delaware avenue and H street NE.	Pennsylvania R. R.	Baltimore and Ohio R. R.	District of Columbia yards.	Bidder's works.	Hauling.
Frederick Brick Works.....						\$9.70	\$13.00	\$13.00			
Wm. Wirt Clarke & Son.....	\$9.41	\$10.41	\$10.41	\$10.41	\$8.91						
John Miller & Co.....	9.39	9.89	9.99	10.19	11.39						
Standard Brick Company.....											

a For city delivery, Third and O street SW.

b Waterloo Station, Va.

Schedule of proposals for furnishing granite curbing, received June 3, 1902.

Bidder.	Standard, 6 by 20 inches.		Standard, 8 by 8 inches.	
	Straight.	Circular.	Straight.	Circular.
Francis Jones & Co	\$0.77	\$1.15	\$0.67 ^a	\$1.10
Georgia Rough and Cut Stone Co. ....	.79 ^b	1.25	.71 ^b	1.00
Venable Bros .....	.75	1.00	.66	1.00
Brantley & Doby .....	.78	1.10	.74	1.00

Schedule of proposals received for sand and gravel, opened June 3, 1902.

Bidder.	Paving and concrete.		Building.		Screened gravel.	
L. E. Smoot	\$0.59		\$0.68		\$5.87	
Columbia National Sand Dredging Company .....	.55		.65		.90	

Schedule of bids received June 3, 1902, for terra-cotta pipes, Y branches, vitrified invert blocks, and bricks.

Bidder.	Sewer pipe.							
	24 inches.	21 inches.	18 inches.	15 inches.	12 inches.	10 inches.	8 inches.	6 inches.
Angus Lamond					\$0.29		\$0.145	\$0.085
American Sewer Brick Co.	\$1.05	\$0.81	\$0.55	\$0.44	.33	\$0.25	.165	.065
Federal Clay Manufacturing Co.								
Pot Works	1.04	.80	.54	.43	.32	.24	.16	.09
Mack Manufacturing Co .....	.80	.62	.42	.33	.25	.185	.12	.075

Bidder.	Y branches.						Reducers, 8 to 6 inches.	Bands.	Invert bricks.
	24 by 6 inches.	21 by 6 inches.	18 by 6 inches.	15 by 6 inches.	12 by 6 inches.	10 by 6 inches.			
Angus Lamond									
Savage Fire Brick Co.							\$0.30	\$0.50	
Guise Brick and Stone Co.									\$18.50
American Sewer Brick Co.	\$4.75	\$3.75	\$2.55	\$2.00	\$1.45	\$1.12	\$0.75	\$0.68	.36
Federal Clay Manufacturing Co.	4.68	3.60	2.45	1.95	1.50	1.09	.72	.64	.35
Pot Works	3.65	2.81	1.91	1.52	1.12	.83	.56	.50	.27
Mack Manufacturing Co. ....									.33

^aClearfield.*Schedule of proposals received June 3, 1902, for repressed vitrified paving blocks.*

Bidder.	Blocks.	Half blocks.	Remarks.	
Mack Manufacturing Co	\$20.45	\$12.95	42 to square yard, not less than 50,000.	
Jos. P. Mack	19.52	12.90	43 to square yard, not less than 50,000.	
Guise Brick and Stone Co.	20.50	15.00	44 to square yard, not less than 200,000.	
American Sewer Pipe Co	21.70	14.00	42 to square yard, not less than 100,000.	

Schedule of proposals for furnishing Portland cement, opened June 3, 1902.

Bidder.	Canal street.	Baltimore and Ohio R. R.	Philadelphia, Wilmington and Baltimore R. R.
Barber & Ross.....	\$2.30	\$0.25	\$2.25
Wm. Wirt Clarke.....	1.94	1.89	1.89
National Mortar Co.....	1.93	1.96	1.90

Schedule of proposals received June 20, 1902, for a portion of low-area trunk sewer.

Bidder.	Ordinary excavation.	Red-brick masonry, Portland cement.	Vitrified-brick masonry, Portland cement.	Concrete masonry, "A" Portland cement.	Concrete masonry, "B" Portland cement.	6-inch diameter pipe.	Total cost.
Arthur Cowsill.....	\$1.17	\$12.00	\$17.50	\$7.50	\$7.10	\$0.15	\$13,194.00
Andrew Gleeson.....	2.80	19.00	27.00	15.00	12.00	.18	27,532.00
M. F. Talty.....	2.50	20.00	25.00	13.50	10.50	.35	25,520.00



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